

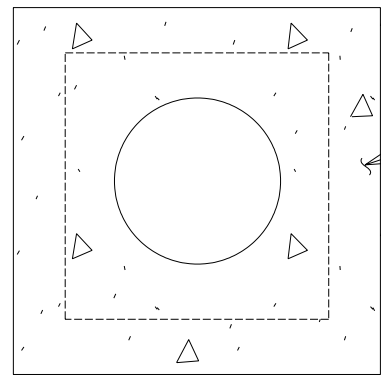
B/CS Unified Construction Details

***Water, Sewer, Streets, Sidewalks,
Drainage, and Stormwater Protection***

Effective August 4, 2000

Revised : 2006

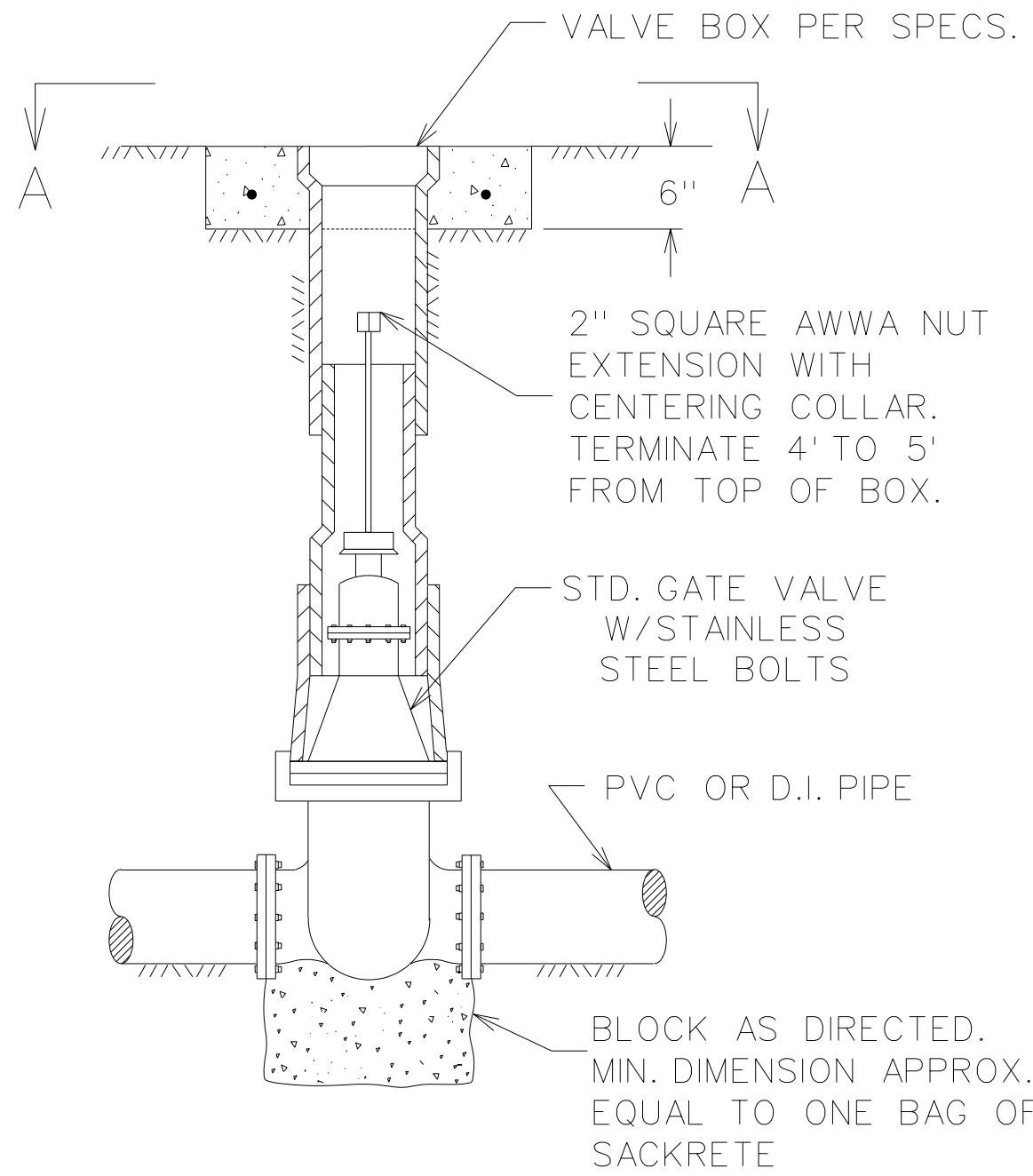




VIEW A - A

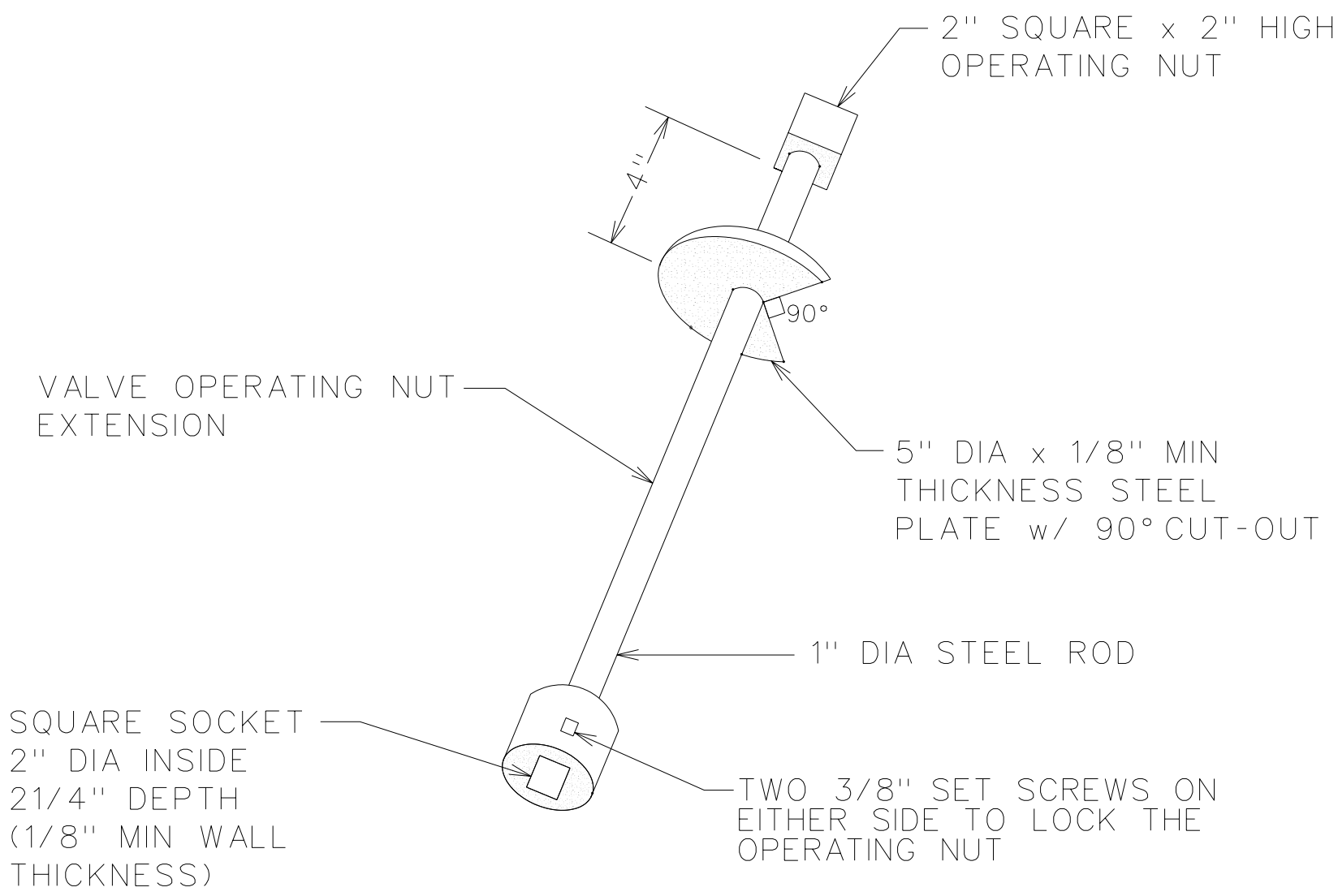
NOTE:

1. VALVE EXTENSION TO BE USED ONLY WHEN TOP OF GATE VALVE IS DEEPER THAN 5 FEET FROM FINISHED GRADE.
2. ALL VALVE OPERATING NUT EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO (2) COATS OF METAL PAINT.
3. EXTENSIONS SHALL BE A MINIMUM OF ONE (1) FOOT LONG.



GATE VALVE & BOX

W1-00

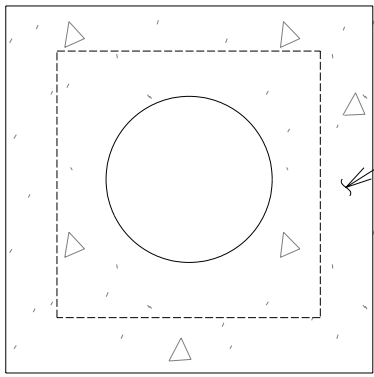


GATE VALVE EXTENSION

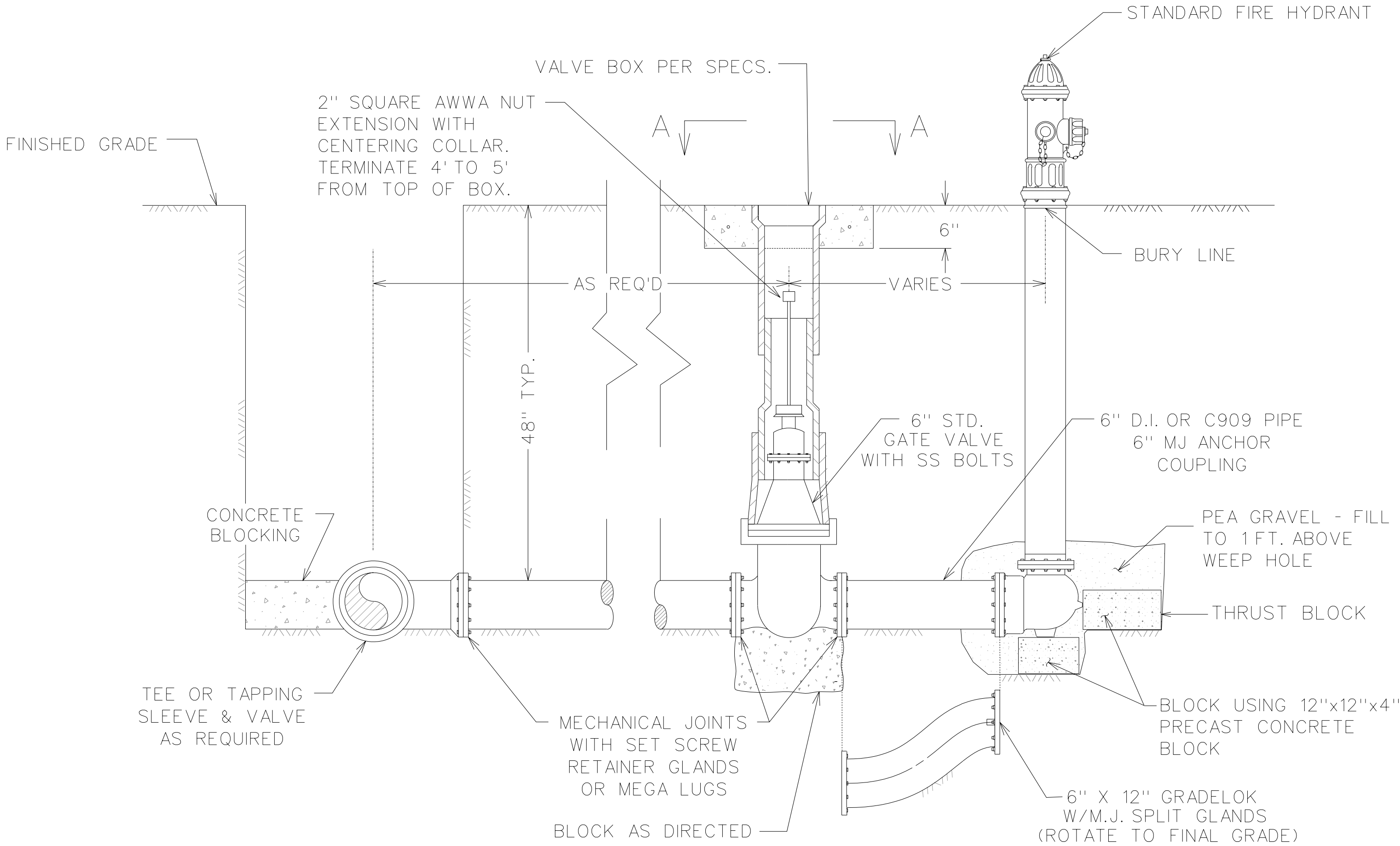
W1-01

General Notes:

- (1) Finely divided earth free of rock, lumps and clods exceeding 6" shall be placed by hand, and compacted around the cast iron pipe to a depth of 12" over the top of the pipe before back fill is begun by any mechanical equipment.
- (2) All concrete blocking shall be - 28 day concrete strength = 2000psi.
- (3) All thrust blocking shall provide a minimum of 2 square feet of bearing area of concrete on undisturbed soil, or as directed by the engineer.
- (4) Water mains will not be fully pressurized until concrete has reached 7 day strength.
- (5) All pipe will be laid so as the entire barrel will have full bearing on the fine graded trench bottom. Bellholes shall be cut for each bell and fire hydrant.
- (6) All fittings shall be mechanical joints unless otherwise directed.



VIEW A - A



STANDARD FIRE HYDRANT ASSEMBLY

W1-02

REVISIONS:

BRYAN - COLLEGE STATION
STANDARD WATER DETAILS

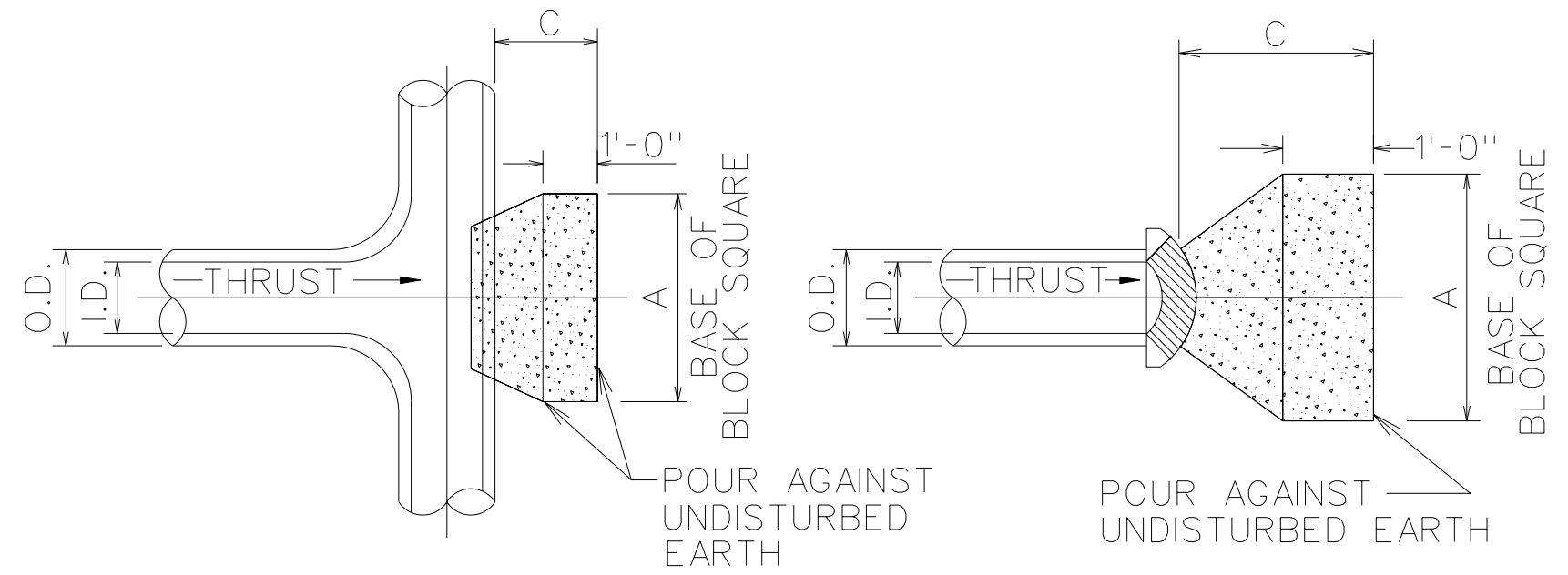


DRAWN BY: C.L.M.
DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.
FIGURE:

W1
SHEET 1 OF 4

NOTE: USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE & PLUG TO PREVENT CONCRETE FROM STICKING TO PLUG.

TEE AND PLUG SCHEDULE					
ID (in)	THRUST (tons)	C (ft)	A (ft)	VOLUME (c.y.)	
4,6,8	5.1	1.5	2.5	0.3	
10,12	11.3	1.5	3.5	0.6	



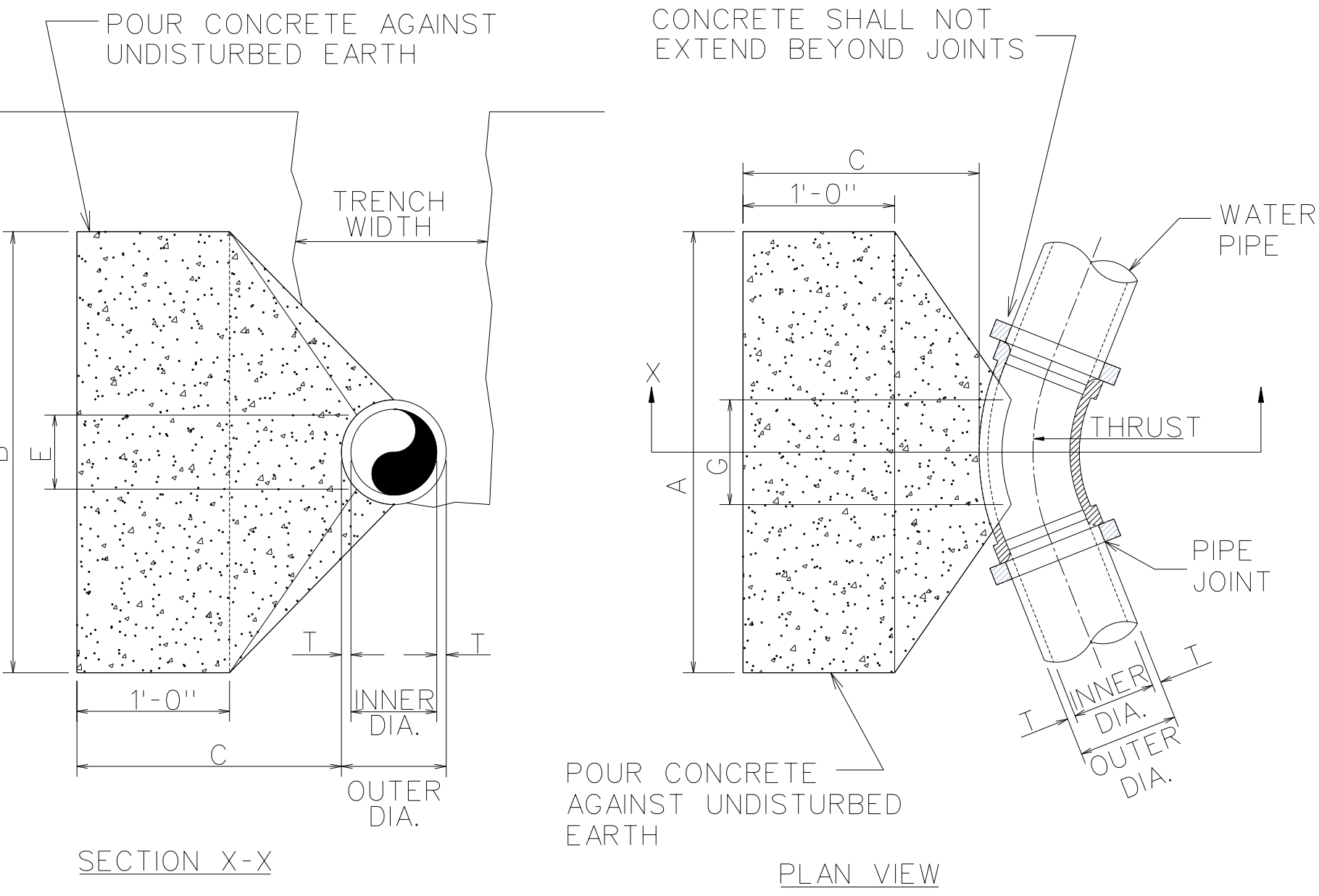
TEE THRUST BLOCK

PLUG THRUST BLOCK

THRUST BLOCK NOTES:

- ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200psi FOR 24" AND SMALLER INNER DIAMETER PIPE.
- ALL BEARING SURFACES OF THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED EARTH OR ROCK.
- CONCRETE FOR BLOCKING SHALL BE 2000 psi.
- DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD WHERE AND AS DIRECTED BY THE ENGINEER, THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.
- WATER MAIN SHALL NOT BE PRESSURIZED UNTIL ALL CONCRETE BLOCKING HAS REACHED 1500psi.

THRUST BLOCK DETAILS



SECTION X-X

PLAN VIEW

HORIZONTAL THRUST BLOCK SCHEDULE

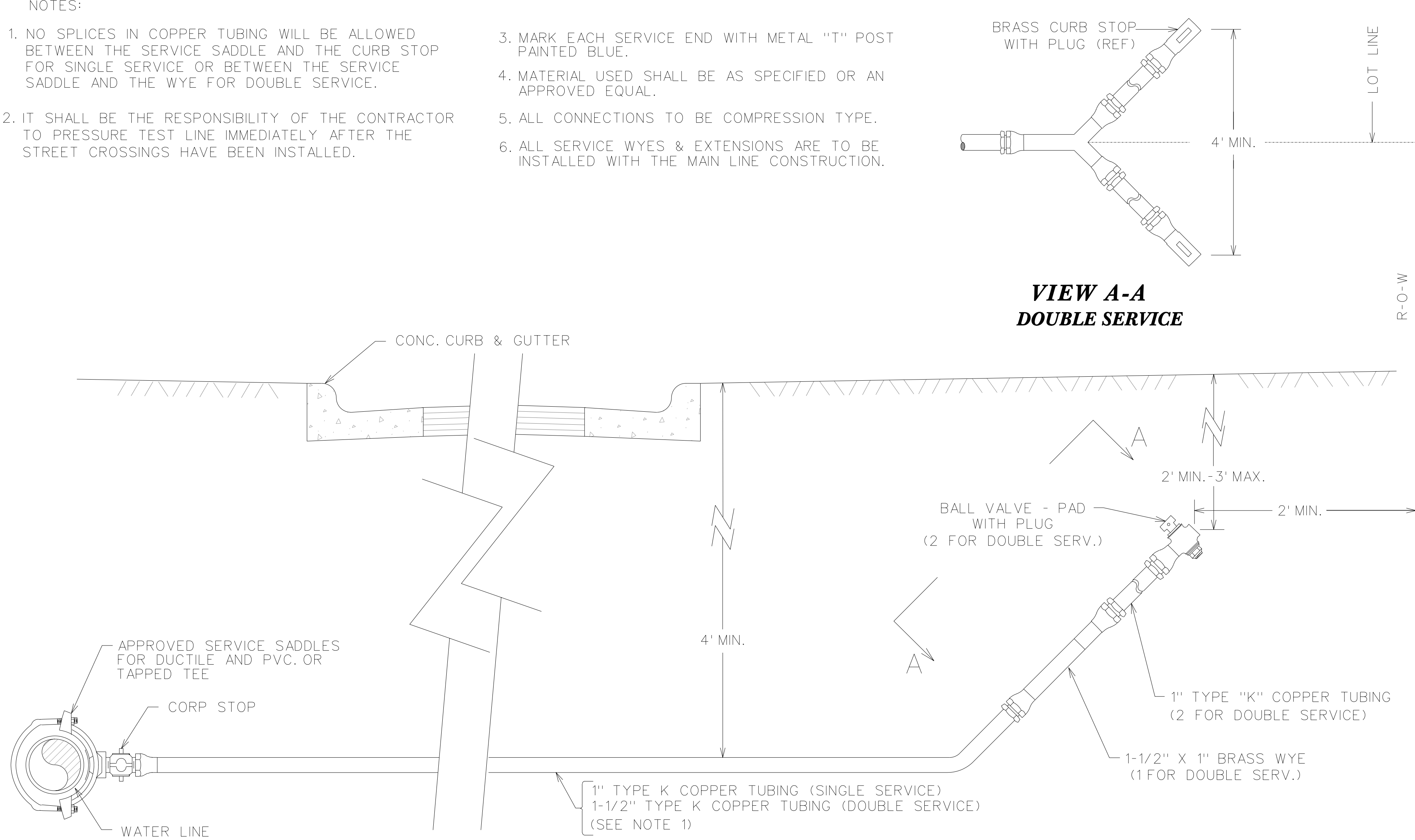
BEND	SIZE	A (ft)	B (ft)	C (ft)	E (ft)	G (ft)	VOLUME (c.y.)
90°	6,8"	5.0	1.5	1.5	0.9	2.7	0.4
	10,12"	6.5	2.5	1.5	1.2	4.0	1.0
45°	6,8"	2.0	2.0	1.5	0.9	1.5	0.2
	10,12"	3.5	2.5	1.5	1.2	2.2	0.5
22.5°	6,8"	1.5	1.5	1.5	0.9	0.8	0.1
	10,12"	2.0	2.5	1.5	1.2	1.1	0.3
11.25°	6,8"	1.0	1.5	1.5	0.9	0.4	0.1
	10,12"	1.5	1.5	1.5	1.2	0.6	0.1

TYPICAL HORIZONTAL THRUST BLOCK

W2-00

NOTES:

- NO SPLICES IN COPPER TUBING WILL BE ALLOWED BETWEEN THE SERVICE SADDLE AND THE CURB STOP FOR SINGLE SERVICE OR BETWEEN THE SERVICE SADDLE AND THE WYE FOR DOUBLE SERVICE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PRESSURE TEST LINE IMMEDIATELY AFTER THE STREET CROSSINGS HAVE BEEN INSTALLED.
- MARK EACH SERVICE END WITH METAL "T" POST PAINTED BLUE.
- MATERIAL USED SHALL BE AS SPECIFIED OR AN APPROVED EQUAL.
- ALL CONNECTIONS TO BE COMPRESSION TYPE.
- ALL SERVICE WYES & EXTENSIONS ARE TO BE INSTALLED WITH THE MAIN LINE CONSTRUCTION.



WATER CROSSING

W2-01

BRYAN - COLLEGE STATION
STANDARD WATER DETAILS



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APPROVED: W.P.K.
FIGURE:

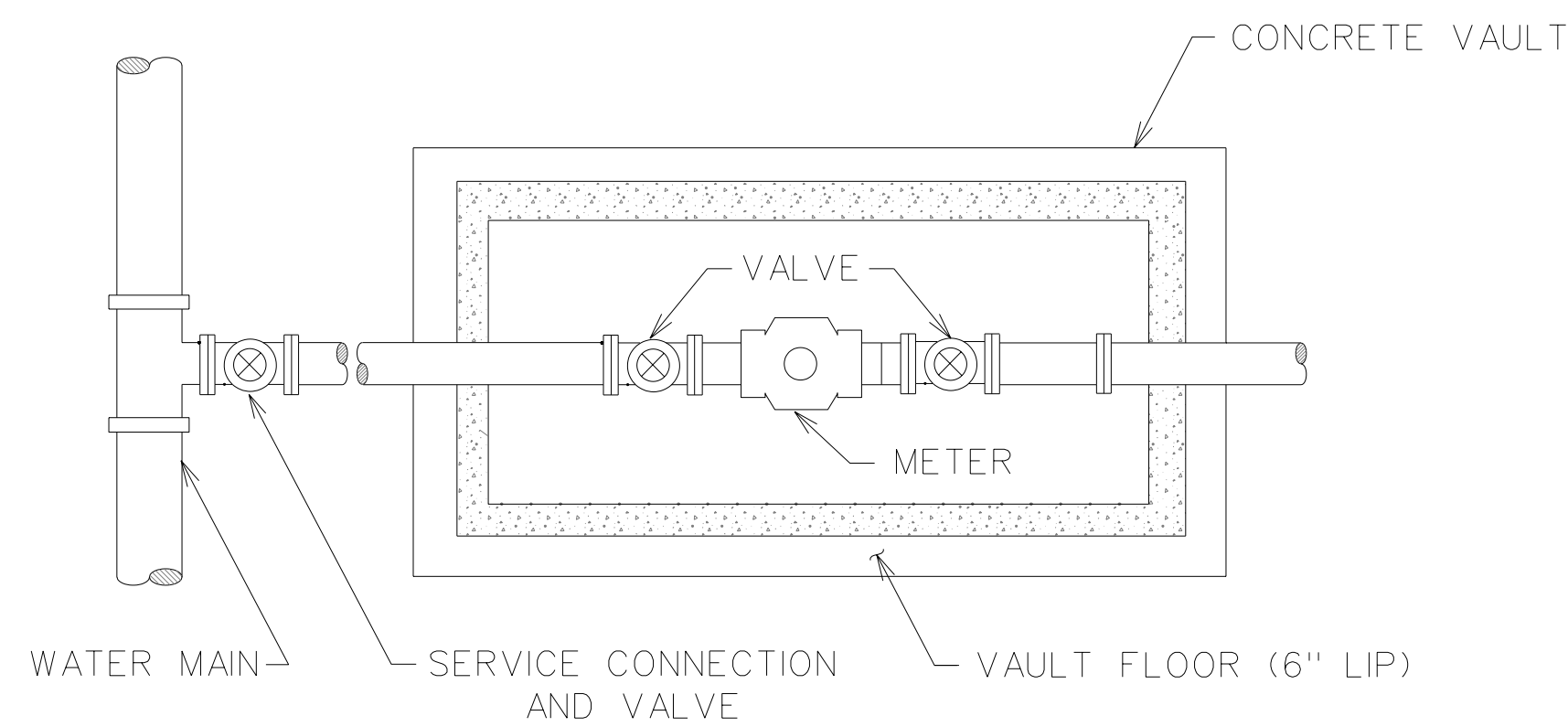
W2
SHEET 2 OF 4

- SPECIAL CONDITIONS
1. METER REGISTER SHALL BE NO DEEPER THAN 12 INCHES BELOW FINISHED GRADE.
 2. FLOOR OF VAULT WILL BE A MINIMUM OF 6 INCHES FROM BOTTOM OF ANY PIPING APPARATUS OR METER WITHIN THE VAULT.
 3. REINFORCED CONCRETE VAULT BASE (FLOOR) SHALL BE CONSTRUCTED USING A STANDARD FIVE SACK CONCRETE MIX AND REINFORCING COMPRISED OF #3 REBAR ON 12 INCH CENTERS WITH A MINIMUM BASE THICKNESS OF 6 INCHES.
 4. SET SCREW RETAINER GLANDS SHALL BE INSTALLED AT EACH FITTING ON MECHANICAL JOINT PIPE.
 5. VALVES SHALL MEET THE CITY SPECIFICATIONS FOR VALVES.
 6. THERE SHALL BE NO PIPING UNDER THE FLOOR OF THE VAULT.

APPROVED 3" OR LARGER COMPOUND
METERS, VAULTS & MATERIALS

- APPROVED METERS - SENSUS SRH (U. S. GALLONS)
APPROVED VAULTS - PARK DMC-BR
PRE-CAST CONCRETE VAULT WITH
ADEQUATE ACCESS AND VAULT DIMENSIONS
FOR METER SELECTED
APPROVED MATERIALS - DUCTILE IRON PIPE WITH MECHANICAL
JOINT. SET SCREW RETAINER GLANDS WILL
BE USED ON ALL M. J. FITTINGS.

ANY DEVIATIONS FROM THE ABOVE SPECIAL CONDITIONS OR APPROVED METERS,
VAULTS OR MATERIALS MUST BE SUBMITTED TO THE DIVISION MANAGER, WATER
SERVICES, 72 HOURS PRIOR TO ANTICIPATED DEVIATION.

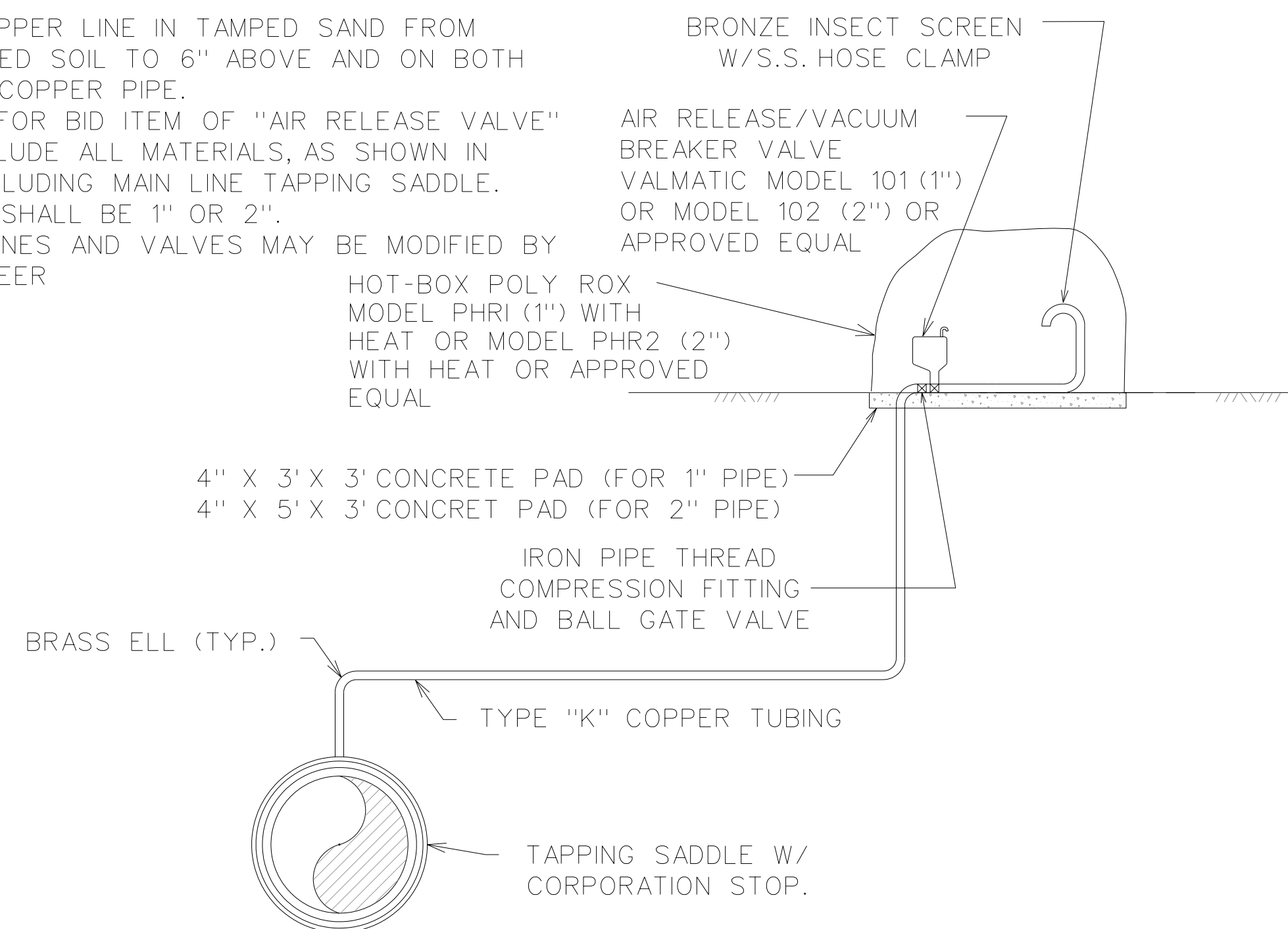


METER VAULT ASSEMBLY

W3-00

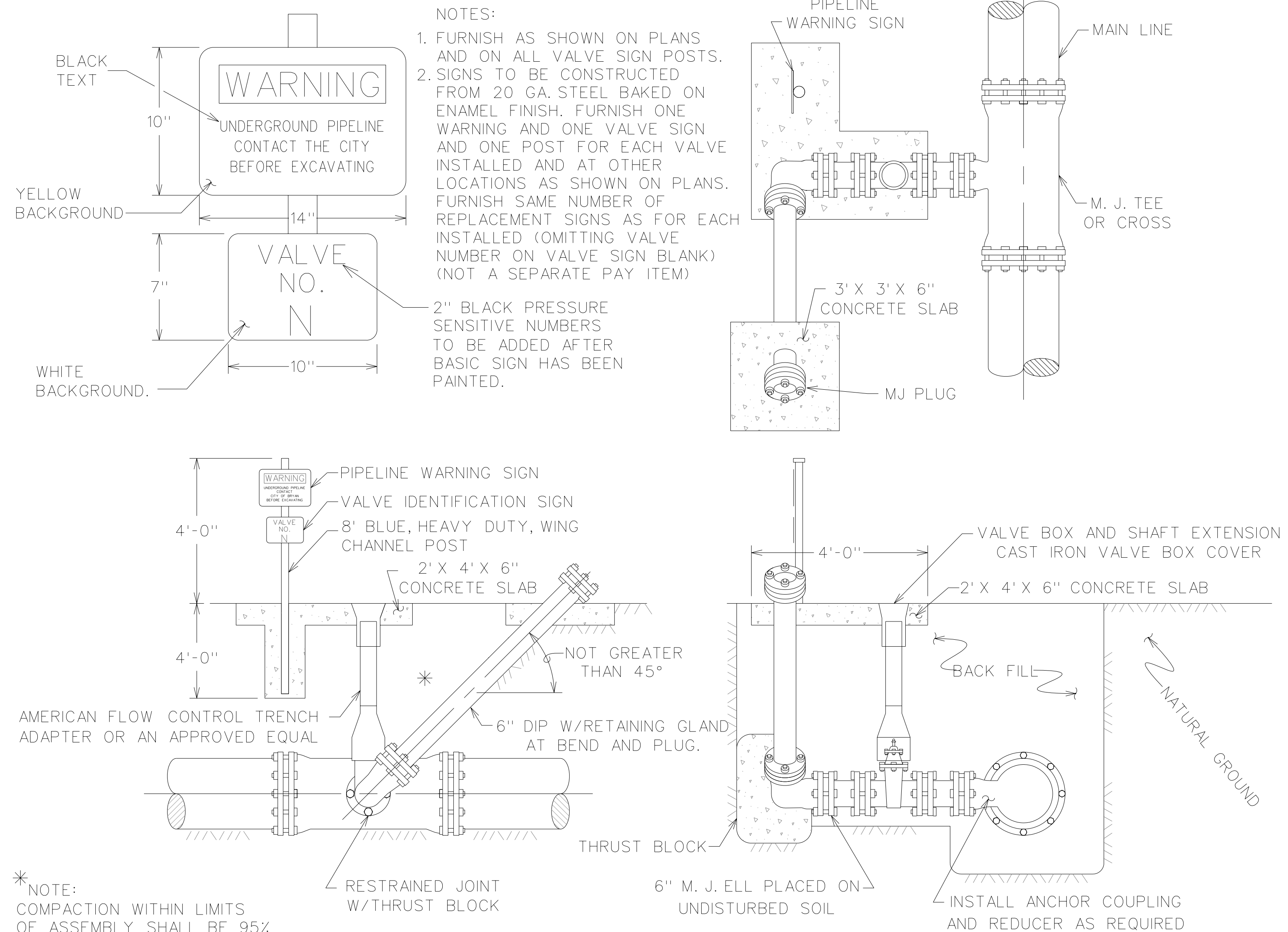
NOTE:

1. EMBED COPPER LINE IN TAMPED SAND FROM UNDISTURBED SOIL TO 6" ABOVE AND ON BOTH SIDES OF COPPER PIPE.
2. PAYMENT FOR BID ITEM OF "AIR RELEASE VALVE" SHALL INCLUDE ALL MATERIALS, AS SHOWN IN DETAIL, INCLUDING MAIN LINE TAPPING SADDLE.
3. PIPE SIZE SHALL BE 1" OR 2".
4. SIZE OF LINES AND VALVES MAY BE MODIFIED BY THE ENGINEER



AIR RELEASE VALVE & VACUUM CHECK VALVE

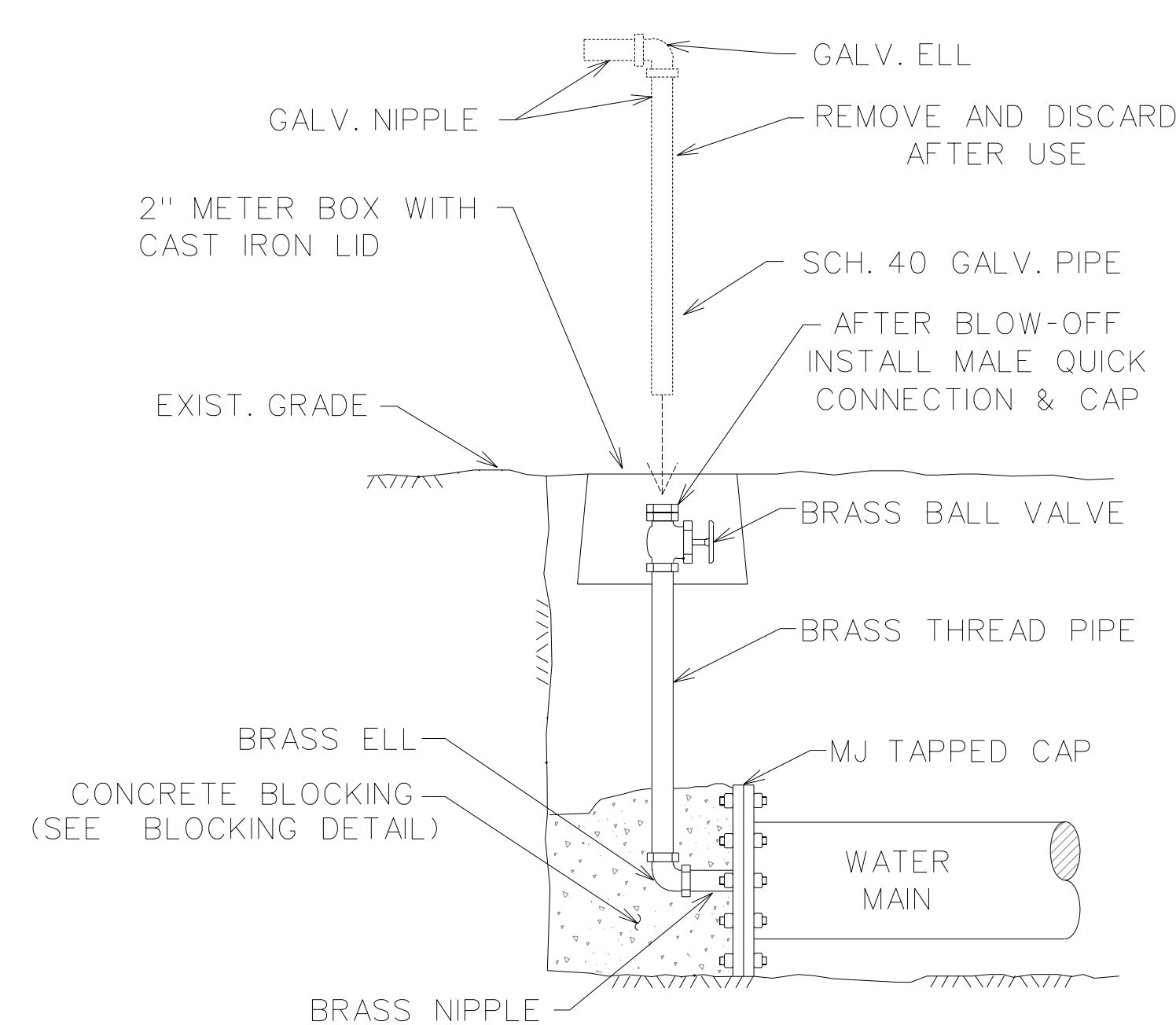
W3-02



* NOTE:
COMPACTION WITHIN LIMITS
OF ASSEMBLY SHALL BE 95%
STANDARD DENSITY PER
ASTM D698

IN-LINE BLOW OFF ASSEMBLY

W3-01

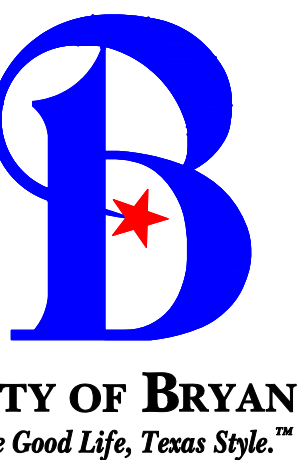


2" BLOW-OFF RISER

W3-03

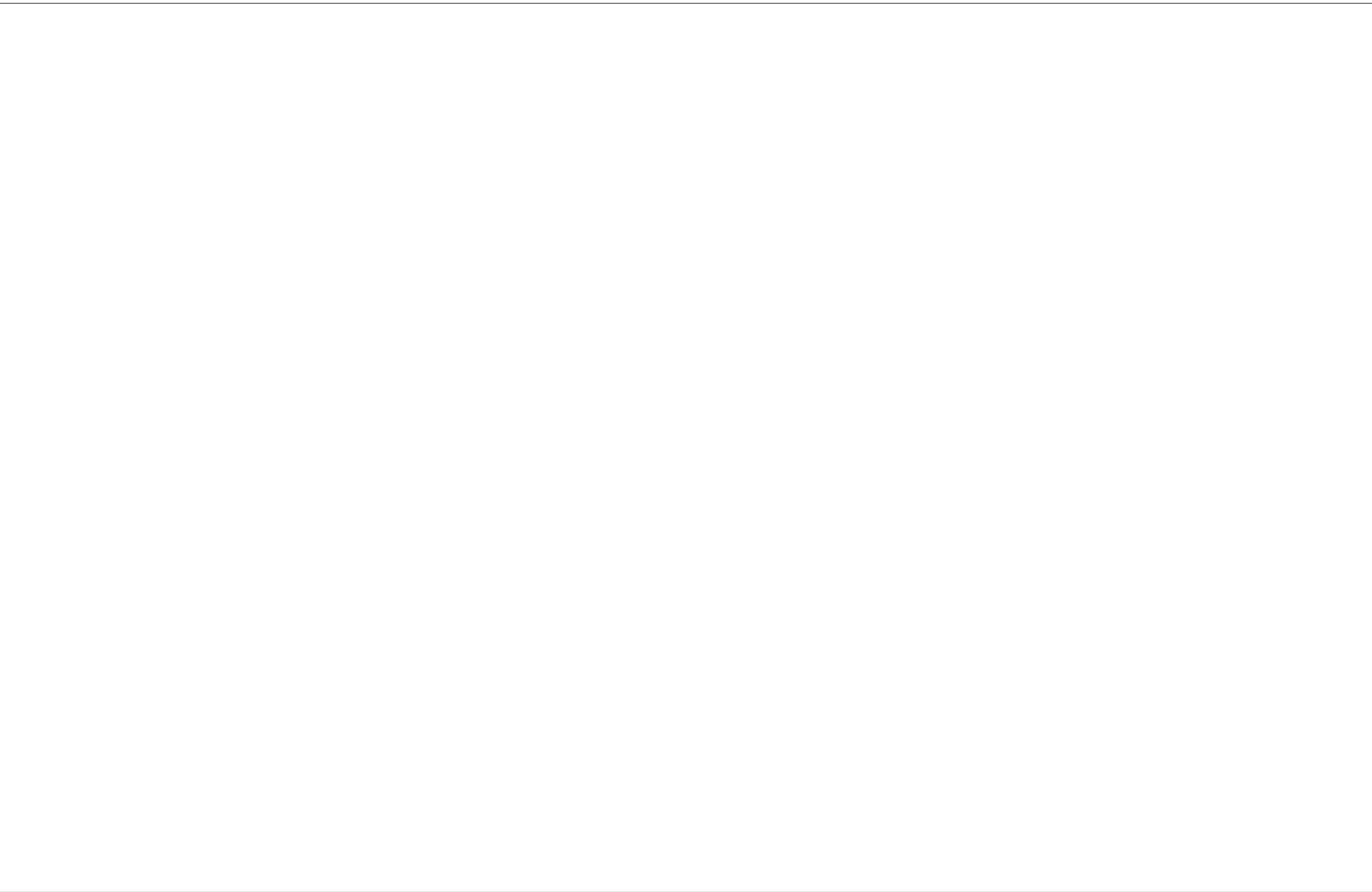
REVISIONS:

**BRYAN - COLLEGE STATION
STANDARD WATER DETAILS**



DRAWN BY: C.L.M.
DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.
FIGURE:

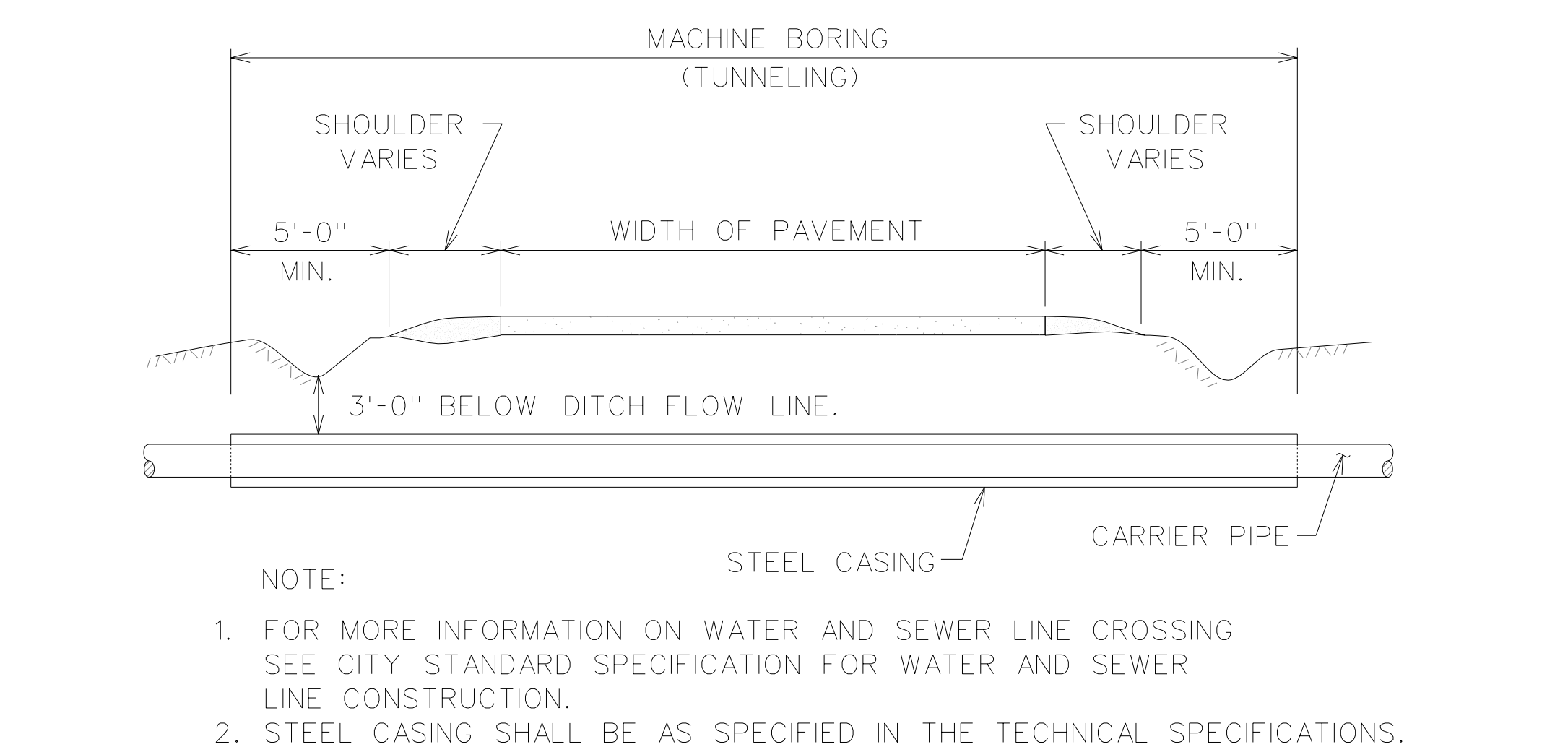
W3
SHEET 3 OF 4



- NOTE:
1. FOR MORE INFORMATION ON WATER AND SEWER LINE CROSSING SEE CITY STANDARD SPECIFICATION FOR WATER AND SEWER LINE CONSTRUCTION.
 2. STEEL CASING SHALL BE AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS.
 3. DRY BORING PREFERRED, WET BORING ALLOWED ONLY WHEN APPROVED BY THE CITY ENGINEER.

TYPICAL URBAN
CITY STREET CROSSING

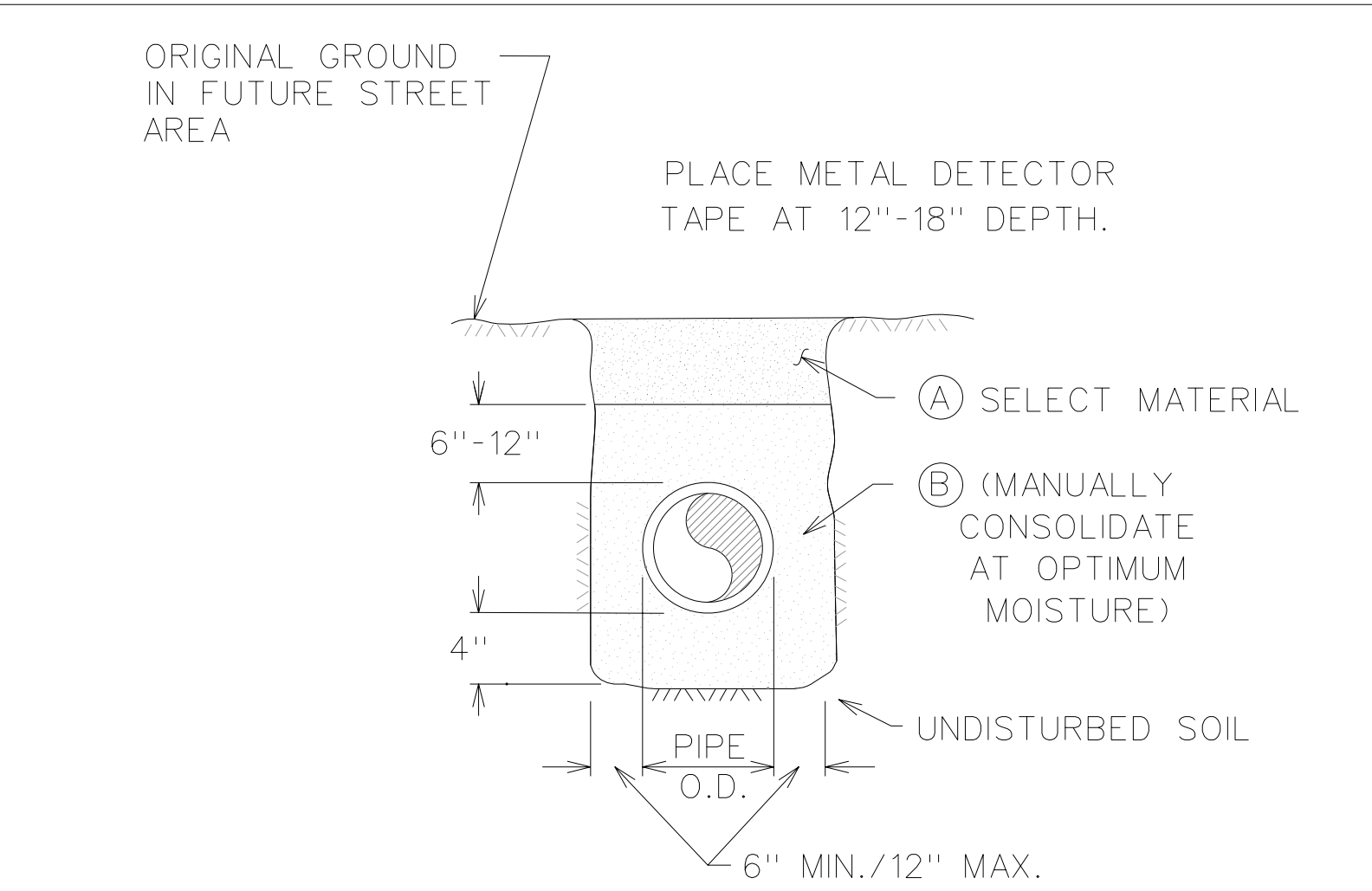
W4-00



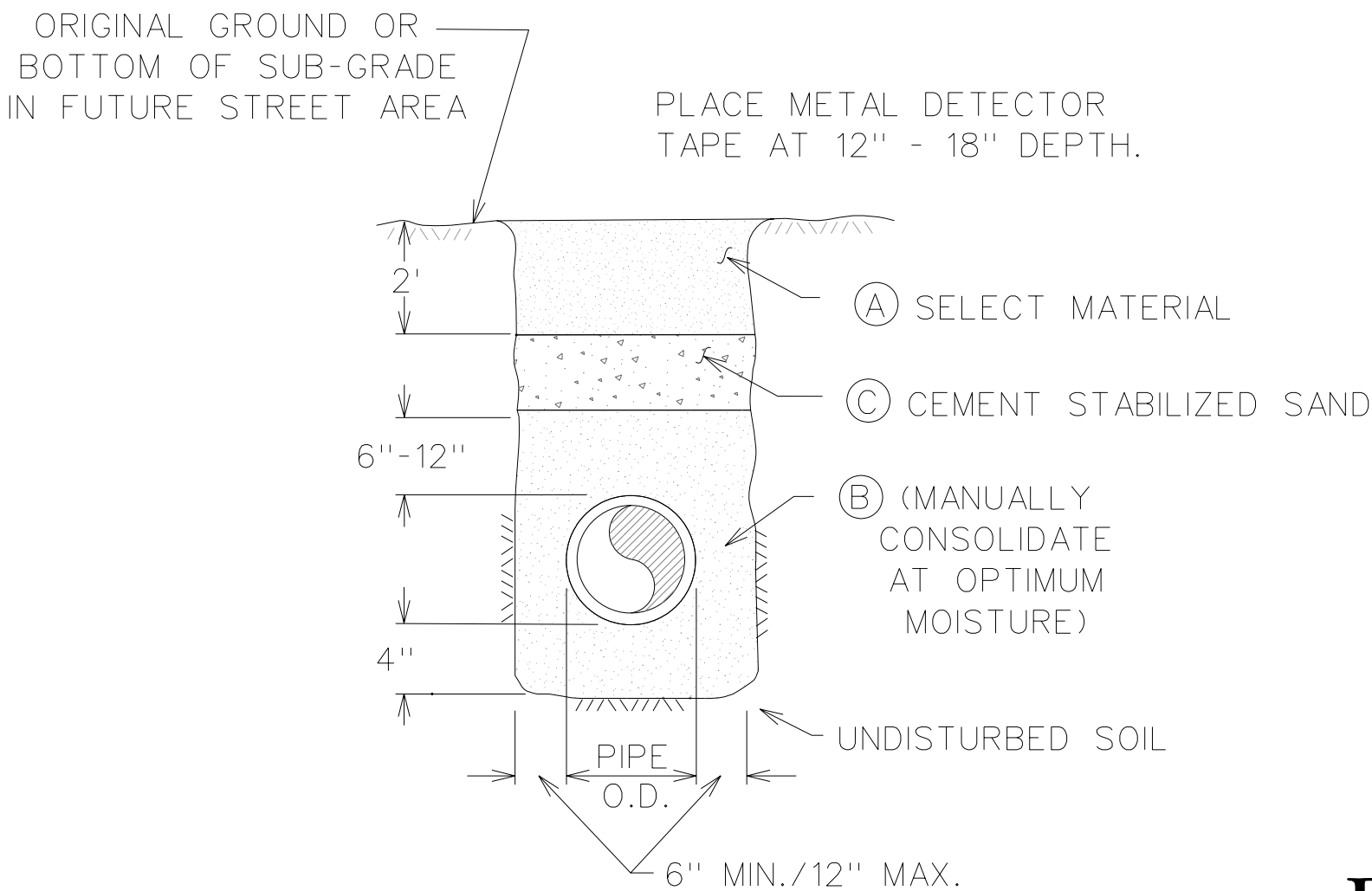
- NOTE:
1. FOR MORE INFORMATION ON WATER AND SEWER LINE CROSSING SEE CITY STANDARD SPECIFICATION FOR WATER AND SEWER LINE CONSTRUCTION.
 2. STEEL CASING SHALL BE AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS.
 3. DRY BORING IS REQUIRED.

TYPICAL RURAL STREET CROSSING

W4-01



OPTION NO. 1



OPTION NO. 2

GENERAL NOTES:

ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDD OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

ESTABLISHMENT OF VEGETATION MAY BE A WARRANTY ITEM.

- (A) SELECT MATERIAL
MATERIAL EXCAVATED FROM THE DITCH, (WHICH IS FREE OF ROCKS, LUMPS, CLODS, OR DEBRIS LARGER THAN TWO (2) INCHES IN THE LARGEST DIMENSION), COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER NON-STRUCTURAL AREAS (ie...YARDS, PASTURES, EASEMENTS) AND TO A MINIMUM OF 98% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER NEW STREET AND PAVEMENT AREAS.

- (B) GRANULAR MATERIAL
MATERIAL SHALL BE BANK RUN RIVER SAND WHICH IS FREE OF DETRIMENTAL QUANTITIES OF CLAY, DEBRIS, OR ORGANIC MATERIAL AND WHICH, WHEN TESTED BY STANDARD LABORATORY METHODS, MEET THE FOLLOWING REQUIREMENTS:
MAXIMUM LIQUID LIMIT _____ 45
MAXIMUM PLASTICITY INDEX _____ 15
MAXIMUM PERCENT PASSING NO. 200 SIEVE _____ 35
MINIMUM PERCENT PASSING 3/4" SIEVE _____ 100
THE MATERIAL SHALL BE FREE FLOWING AND WHEN WET, SHALL NOT ADHERE TO FORM A BALL WHEN PRESSED IN THE HAND.

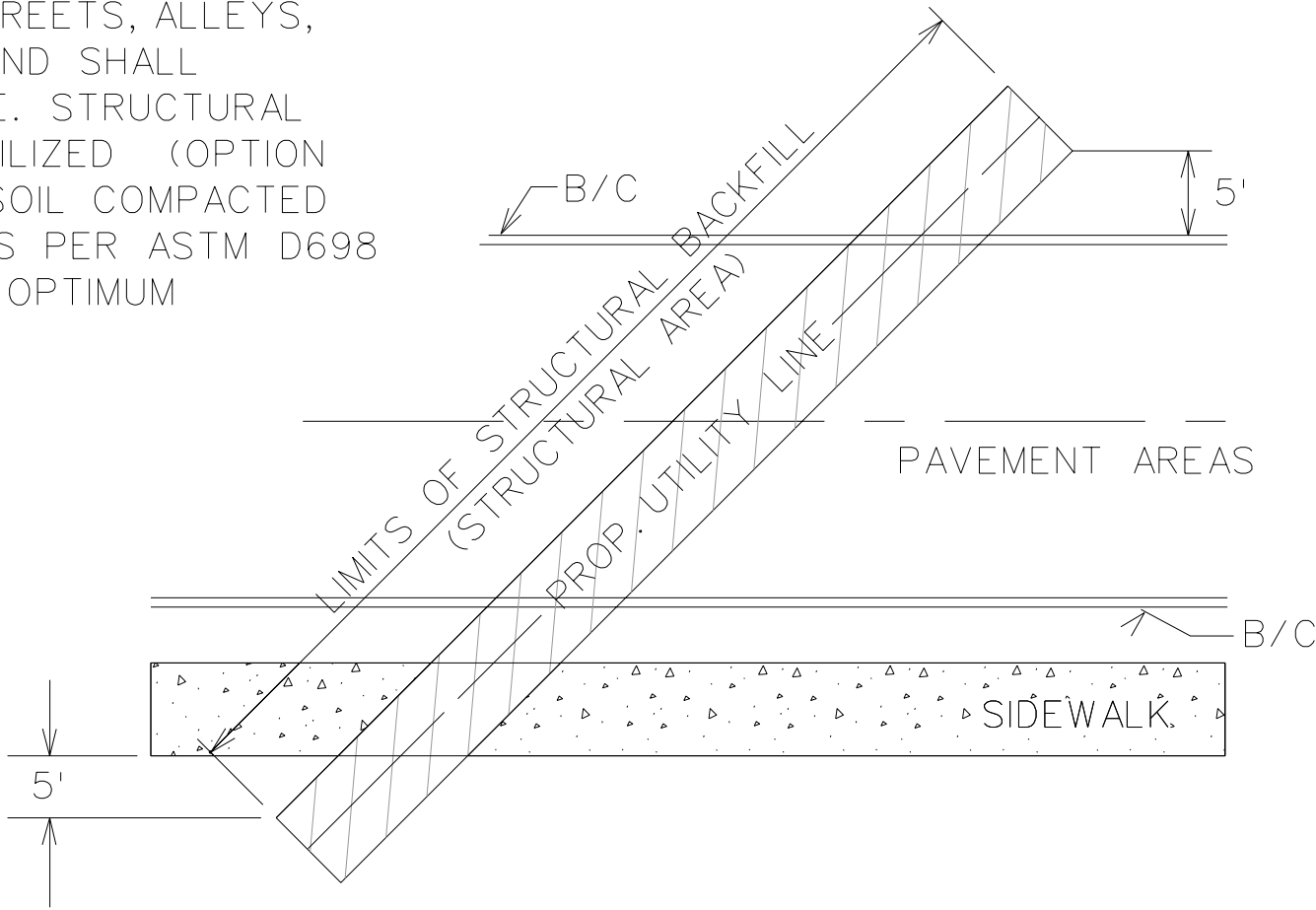
- (C) CEMENT STABILIZED SAND

- NOTES: 1. FOR BEDDING AND TRENCHING WITHIN ALL PAVED AREAS SEE DETAILS FOR OPEN CUT STREETS.
2. All bedding & installation of PVC pipe shall be in accordance to ANSI/AWWA Standards for PVC Pipe.
 3. All bedding & installation of Ductile Iron pipe shall be in accordance to ANSI/AWWA C150/A21.50.
 4. Compaction shall be attained by mechanical tamping.
 5. Relative compaction shall be tested in the presence of the City Engineer.
 6. Dust resulting from the Contractor's performance of the work, either inside or outside the right of way, shall be controlled by the Contractor.
 7. All trenches shall be back filled and temporary paving or plating placed at the end of each working day.
 8. See "Open Cut Details" ST4-00, ST4-01 & ST4-02.

BEDDING AND TRENCH FOR DI PIPE
& PVC PIPE WITHIN NON-STRUCTURAL
OR NEW PAVED AREAS

W4-02

STRUCTURAL BACKFILL AREA INCLUDES ALL PAVED AREAS (SIDEWALKS, STREETS, ALLEYS, DRIVEWAYS, AND PARKING AREAS) AND SHALL EXTEND 5' BEYOND THE CURB LINE. STRUCTURAL BACKFILL SHALL BE CEMENT STABILIZED (OPTION NO. 2 IN W4-03) OR EXCAVATED SOIL COMPACTED TO 98% MAXIMUM DRY DENSITY AS PER ASTM D698 WITHIN OPTIMUM TO +4% WET OF OPTIMUM (OPTION NO. 1 IN W4-02)



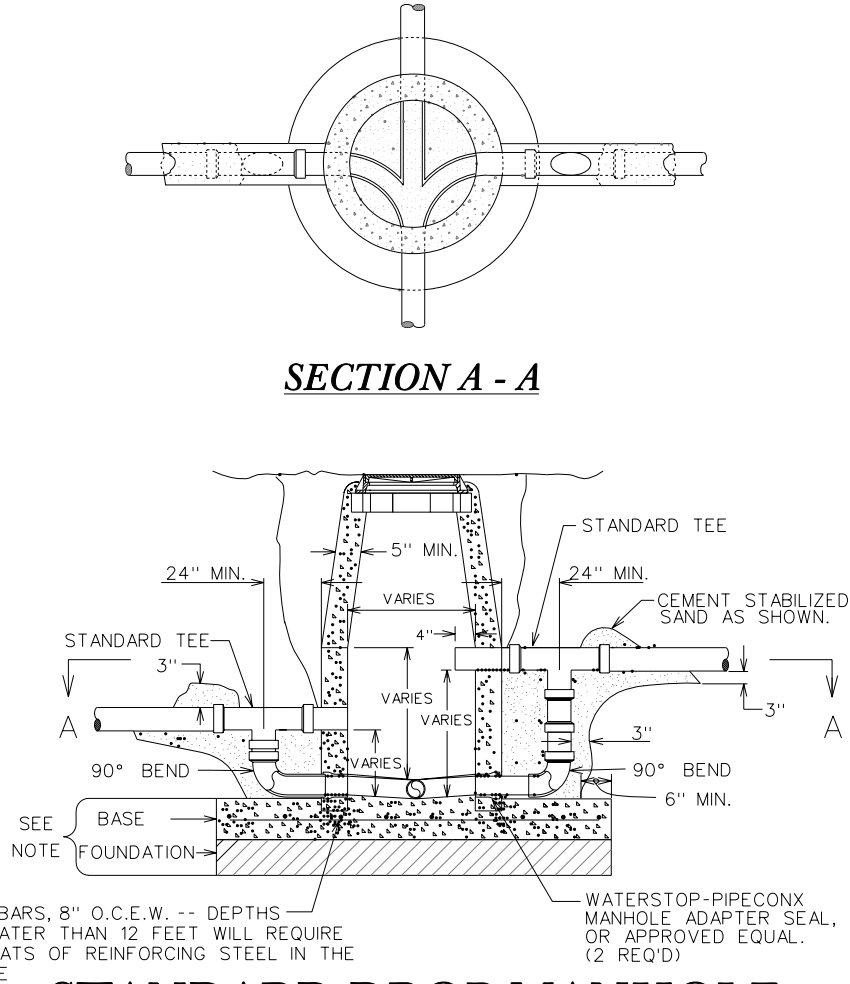
STRUCTURAL BACKFILL AREA

W4-03

BRYAN - COLLEGE STATION
STANDARD WATER DETAILS



NOTE:
MANHOLE BASE SHALL BE PLACED ON FIRM SUBGRADE.
ADDITION OF CEMENT STABILIZED SAND OR GRAVEL
MAY BE REQUIRED TO STABILIZE FOUNDATION.

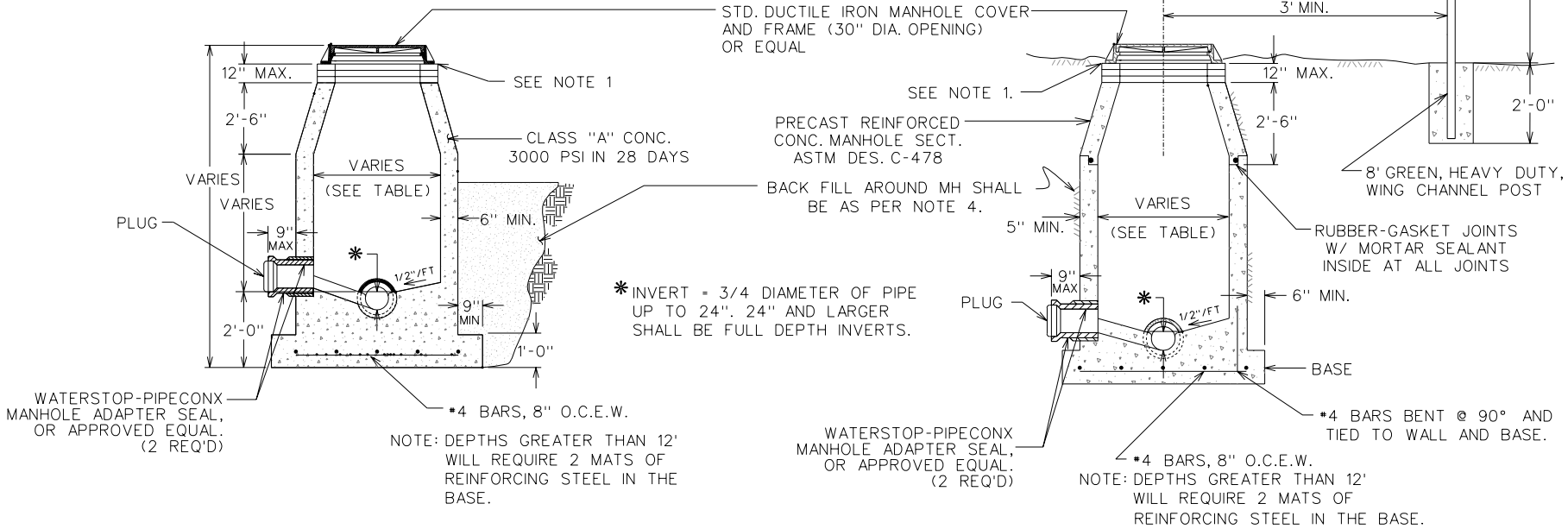


NOTE: CAP CLEAN-OUT AT BLIND FLANGE ON
RESTRAINED JOINT FOR FORCE MAINS.

S1-01

- NOTES:
1. A MAX. OF 4 AND A MIN. OF 2 THROAT RINGS SHALL BE USED AT EACH MANHOLE IN NEW OR EXISTING RIGHT-OF-WAY.
 2. USE ADEKA SEALANT OR APPROVED EQUAL BETWEEN RING/COVER, ADJUSTMENT RINGS AND CHIMNEY OR CORBEL/CONE SECTION.
 3. MANHOLE BASE THICKNESS AND FOUNDATION AS FOLLOWS:
MANHOLE DEPTH (FT.) BASE THICKNESS
0 - 12 8"
12 AND OVER 12"
 4. MANHOLE LOCATION AND COMPACTION AS FOLLOWS:
LOCATION COMPACTION REQUIREMENT
PAVEMENT 98 % STANDARD PROCTOR - ASTM D 698
LANDSCAPE AREA 90 % STANDARD PROCTOR - ASTM D 698
 5. NO RINGS ARE REQUIRED OUTSIDE OF STREET RIGHT-OF-WAY
 6. IN FLOODPLAINS OR AREAS OF CONCENTRATED FLOW, THE CONE SHALL EXTEND 1FOOT ABOVE THE BASE FLOOD ELEVATION OR A BOLT DOWN WATER-TIGHT RING AND COVER SHALL BE USED, VENTED WHERE REQUIRED.
 7. WARNING SIGN ONLY TO BE PLACED WHERE SEWER CROSSES OPEN FIELDS.

MANHOLE DIA.	MAIN SIZE
4 FT	<18in.
5 FT	≥18in. <30in.
6 FT	≥36in.

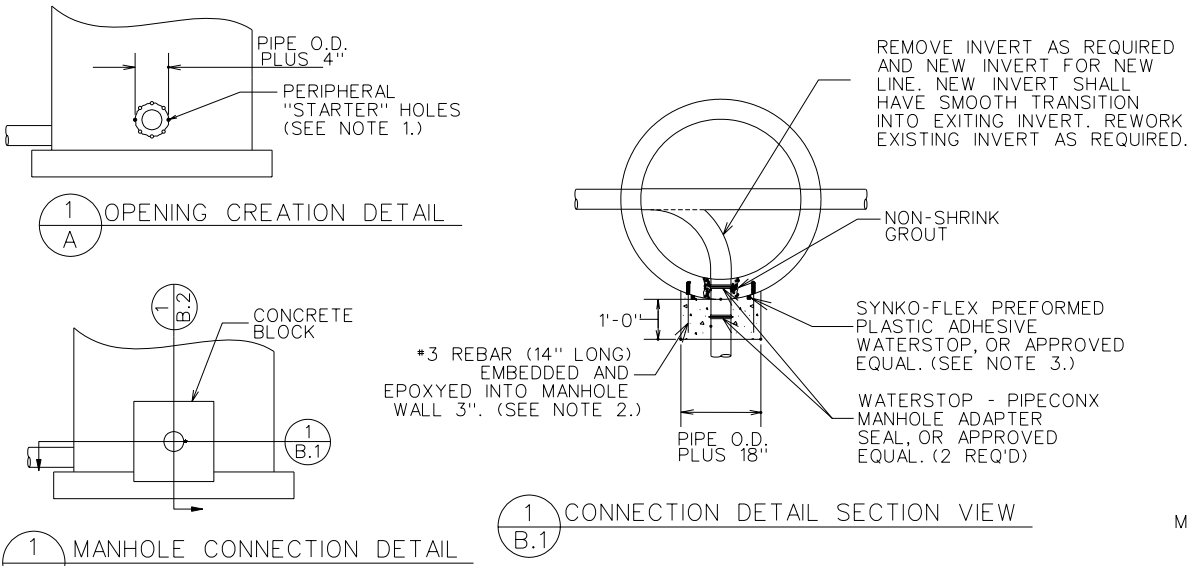


CAST IN PLACE MANHOLE

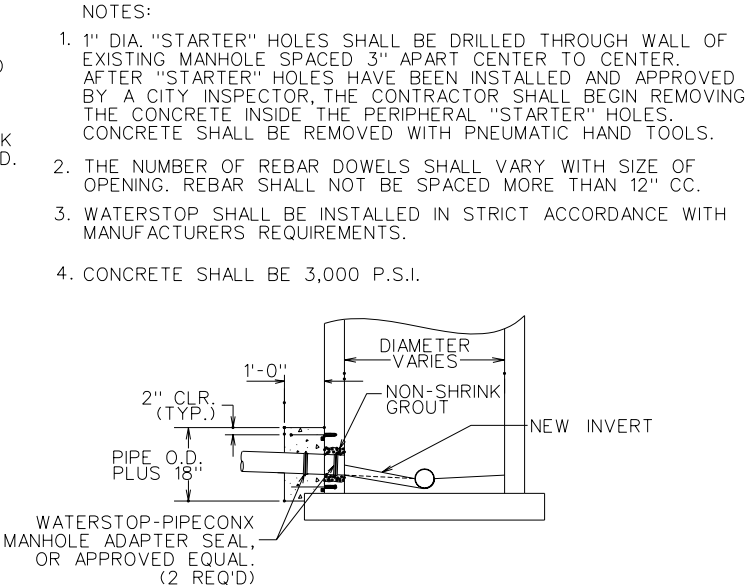
PRE-CAST MANHOLE

STANDARD MANHOLE

S1-02



STANDARD MANHOLE TIE-IN



S1-03

REVISIONS:

BRYAN - COLLEGE STATION
STANDARD SEWER DETAILS

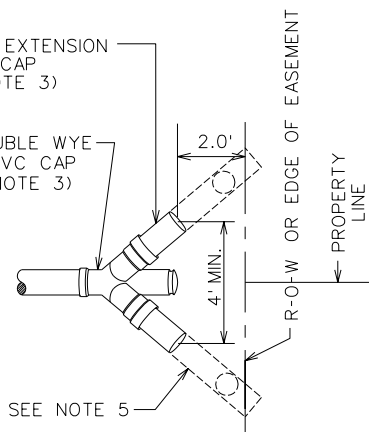


DRAWN BY: C.L.M.
DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.

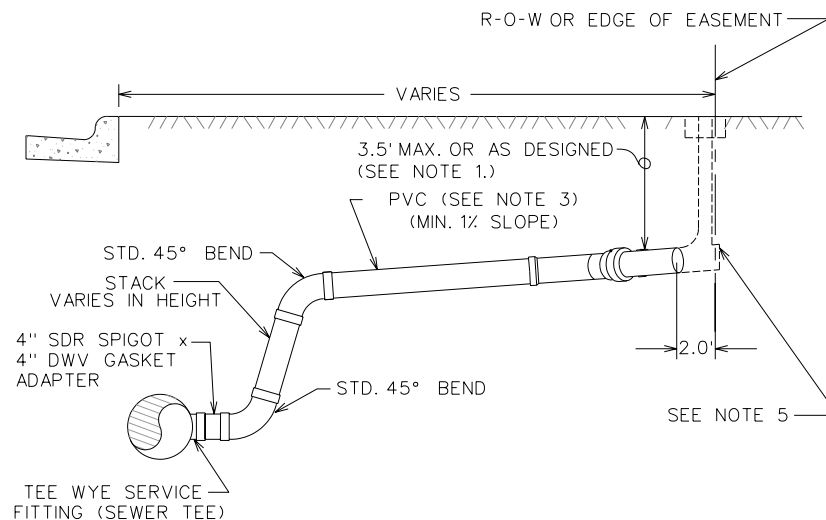
FIGURE:
S1
SHEET 1 OF 4

1. WHERE DOUBLE WYE SERVICE ELEVATION IS LESS THAN 2'-7" BELOW PROPOSED BACK OF CURB, MIN. SLAB ELEV. MUST BE SET TO ALLOW SANITARY SEWER SERVICE.
2. MARK EACH SERVICE END WITH METAL "T" POST PAINTED GREEN.
3. ALL MATERIAL SHALL BE SCH 40 BELL END PIPE W/ GLUED JOINTS.
4. NO COUPLINGS WILL BE ALLOWED UNDER PAVEMENT AREAS.
5. A CLEAN OUT IS REQUIRED AND WILL BE INSTALLED BY THE PLUMBER AT THE ROW FOR EACH SERVICE.

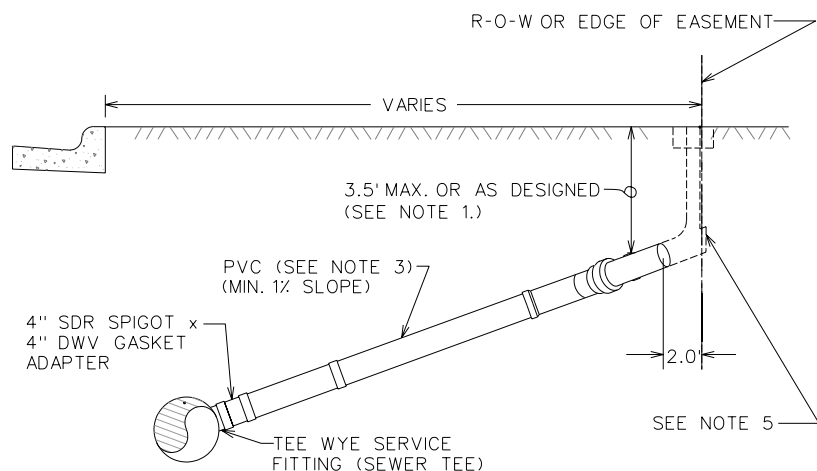
PVC DOUBLE WY
WITH PVC CAP
(SEE NOTE 3)



R-O-W OR EDGE OF EASEMENT →

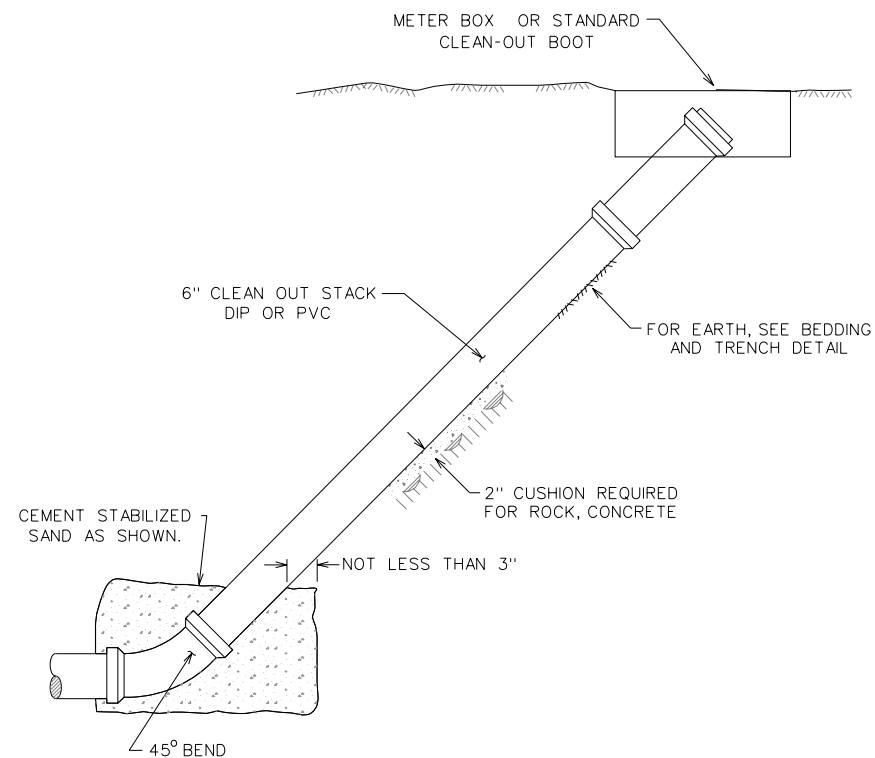


SEE NOTE 5



SANITARY SEWER SERVICE CONNECTION

SEE NOTE 5-



S2-01

(A) SELECT NATIVE MATERIAL
MATERIAL EXCAVATED FROM THE DITCH, (WHICH IS FREE OF ROCKS, LUMPS, CLODS, OR DEBRIS LARGER THAN TWO (2) INCHES IN THE LARGEST DIMENSION), COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER NON-STRUCTURAL AREAS (ie...YARDS, PASTURES, EASEMENTS) AND TO A MINIMUM OF 98% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER NEW STREET AND PAVEMENT AREAS.

(B) GRANULAR MATERIAL
MATERIAL SHALL BE BANK RUN RIVER SAND WHICH IS FREE OF DETRIMENTAL QUANTITIES OF CLAY, DEBRIS, OR ORGANIC MATERIAL AND WHICH, WHEN TESTED BY STANDARD LABORATORY METHODS, MEET THE FOLLOWING REQUIREMENTS:

MAXIMUM LIQUID LIMIT _____	45
MAXIMUM PLASTICITY INDEX _____	15
MAXIMUM PERCENT PASSING NO. 200 SIEVE _____	35
MINIMUM PERCENT PASSING 3/4" SIEVE _____	100

THE MATERIAL SHALL BE FREE FLOWING AND WHEN WET, SHALL NOT ADHERE TO FORM A BALL WHEN PRESSED IN THE HAND.

100

SLIDE

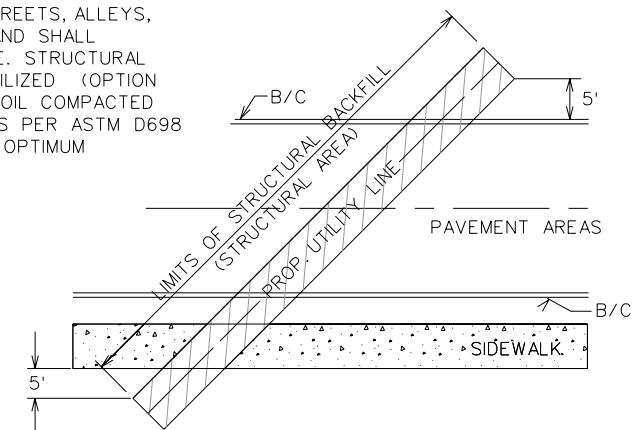
ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

ESTABLISHMENT OF VEGETATION MAY BE A WARRANTY ITEM.

STRUCTURAL BACKFILL AREA INCLUDES
ALL PAVED AREAS (SIDEWALKS, STREETS, ALLEYS,
DRIVEWAYS, AND PARKING AREAS) AND SHALL
EXTEND 5' BEYOND THE CURB LINE. STRUCTURAL
BACKFILL SHALL BE CEMENT STABILIZED (OPTION
NO. 2 IN S2-02) OR EXCAVATED SOIL COMPACTED
TO 98% MAXIMUM DRY DENSITY AS PER ASTM D698
WITHIN OPTIMUM TO +4% WET OF OPTIMUM
(OPTION NO. 1 IN S2-02)

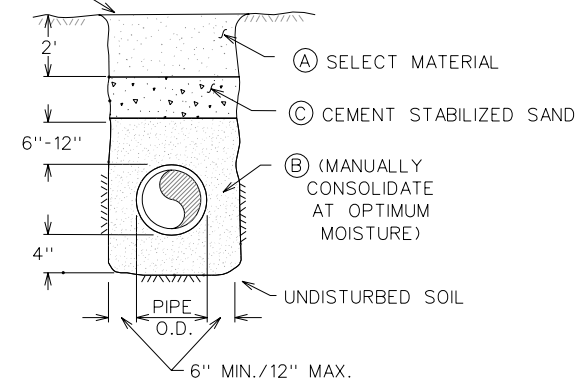


S2-03

Diagram illustrating the installation of a pipe in a trench, showing the relationship between the pipe, the surrounding soil, and the detection tape.

The diagram shows a cross-section of a trench. The pipe is labeled "PIPE O.D." (Outside Diameter). The soil surrounding the pipe is labeled "UNDISTURBED SOIL". The soil is divided into two layers: the top layer is labeled "ORIGINAL GROUND IN FUTURE STREET AREA" and the bottom layer is labeled "SELECT MATERIAL". The "SELECT MATERIAL" layer is further divided into two sub-layers: (A) and (B). Layer (A) is labeled "SELECT MATERIAL" and layer (B) is labeled "(MANUALLY CONSOLIDATE AT OPTIMUM MOISTURE)". The depth of the trench is indicated as "6\" - 12\"". The depth of the "SELECT MATERIAL" layer is indicated as "4\"". The depth of the "UNDISTURBED SOIL" layer is indicated as "6\" MIN./12\" MAX.". The diagram also shows a "METAL DETECTOR TAPE" placed at the bottom of the trench, labeled "PLACE METAL DETECTOR TAPE AT 12\"-18\" DEPTH.".

PLACE METAL DETECTOR
TAPE AT 12"-18" DEPTH.



TURBED SOIL

NOTES:

1. *FOR BEDDING AND TRENCHING WITHIN ALL PAVED AREAS, SEE DETAILS FOR OPEN CUT STREETS.*
2. ALL BEDDING & INSTALLATION OF PVC PIPE SHALL BE IN ACCORDANCE TO ANSI/AWWA STANDARDS FOR PVC PIPE.
3. ALL BEDDING & INSTALLATION OF DUCTILE IRON PIPE SHALL BE IN ACCORDANCE TO ANSI/AWWA C150/A21.50.
4. COMPACTION SHALL BE ATTAINED BY MECHANICAL TAMPING.
5. ALL TRENCHES SHALL BE BACK FILLED AND TEMPORARY PAVING OR PLANKING PLACED AT THE END OF EACH WORKING DAY.
6. SEE "OPEN CUT DETAILS" ST4-00, ST4-01, & ST4-02.

S2-02

REVISIONS:

BRYAN - COLLEGE STATION STANDARD SEWER DETAILS



CITY OF BRYAN
The Good Life, Texas Style.™

DRAWN BY: C.L.M.

DATE: 01-01-06

SCALE: N T S

APPROVED: W.P.K.

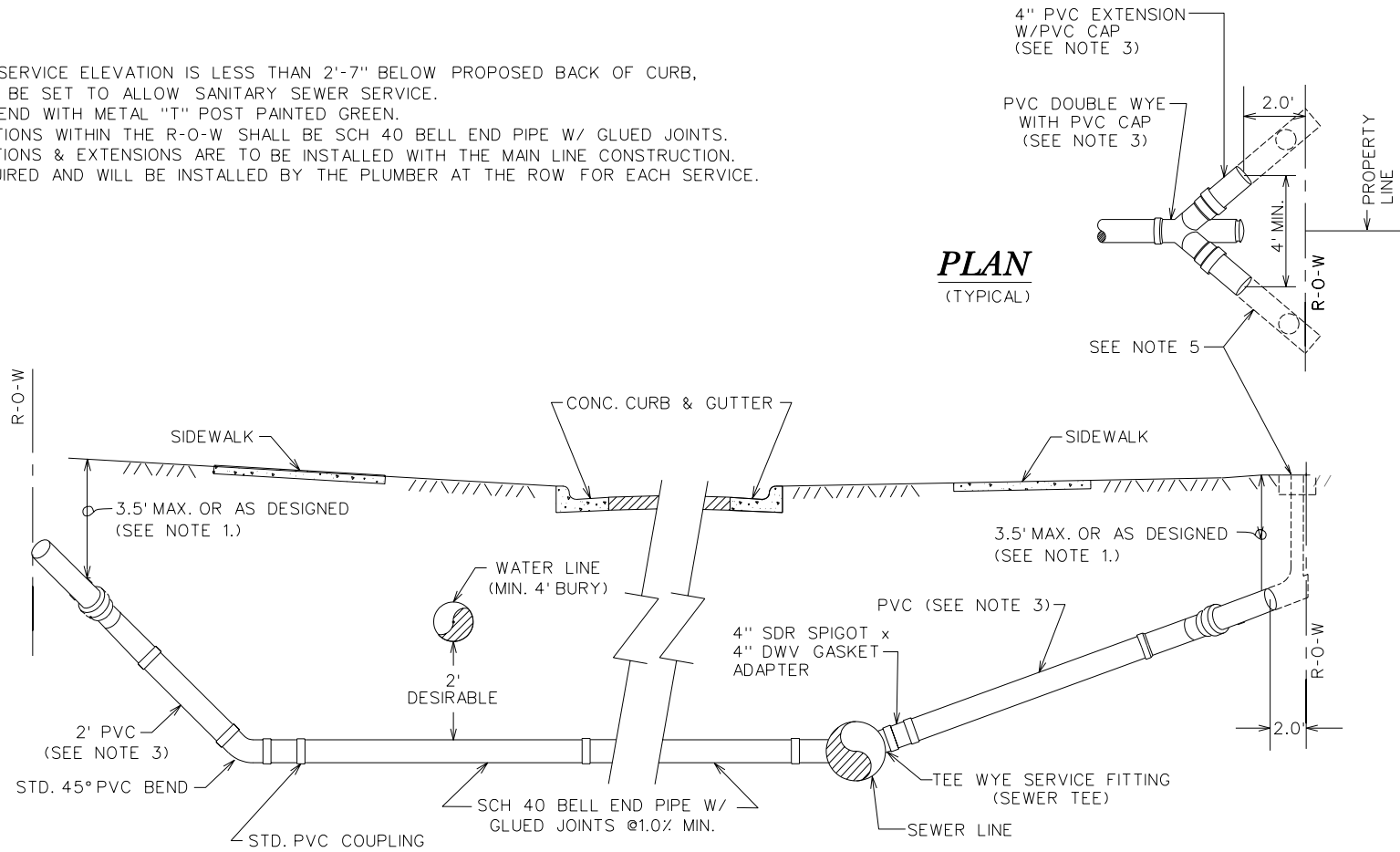
FIGURE:

§ 2

SHEET 2 OF 4

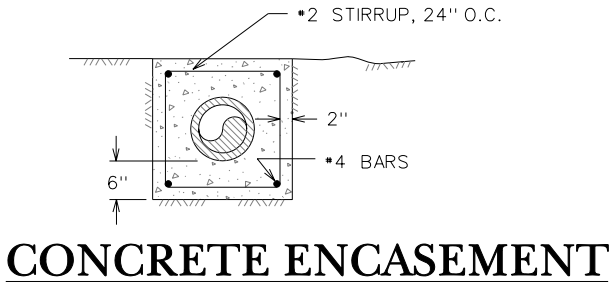
NOTE:

1. WHERE DOUBLE WYE SERVICE ELEVATION IS LESS THAN 2'-7" BELOW PROPOSED BACK OF CURB, MIN. SLAB ELEV. MUST BE SET TO ALLOW SANITARY SEWER SERVICE.
2. MARK EACH SERVICE END WITH METAL "T" POST PAINTED GREEN.
3. ALL SERVICE CONNECTIONS WITHIN THE R-O-W SHALL BE SCH 40 BELL END PIPE W/ GLUED JOINTS.
4. ALL SERVICE CONNECTIONS & EXTENSIONS ARE TO BE INSTALLED WITH THE MAIN LINE CONSTRUCTION.
5. A CLEAN OUT IS REQUIRED AND WILL BE INSTALLED BY THE PLUMBER AT THE ROW FOR EACH SERVICE.

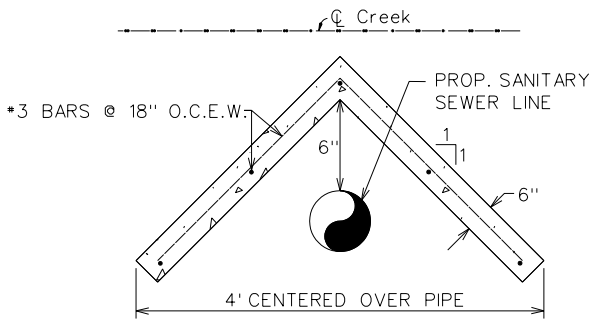


SEWER SERVICE LINE CROSSING

S3-00

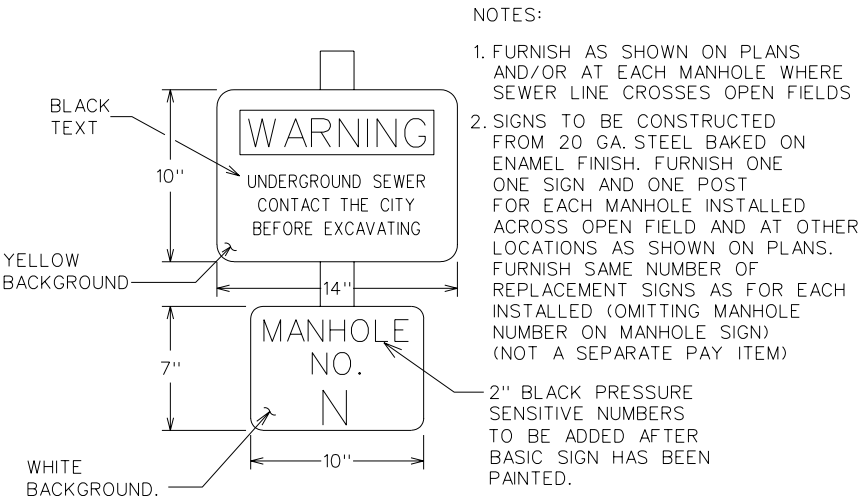


S3-03



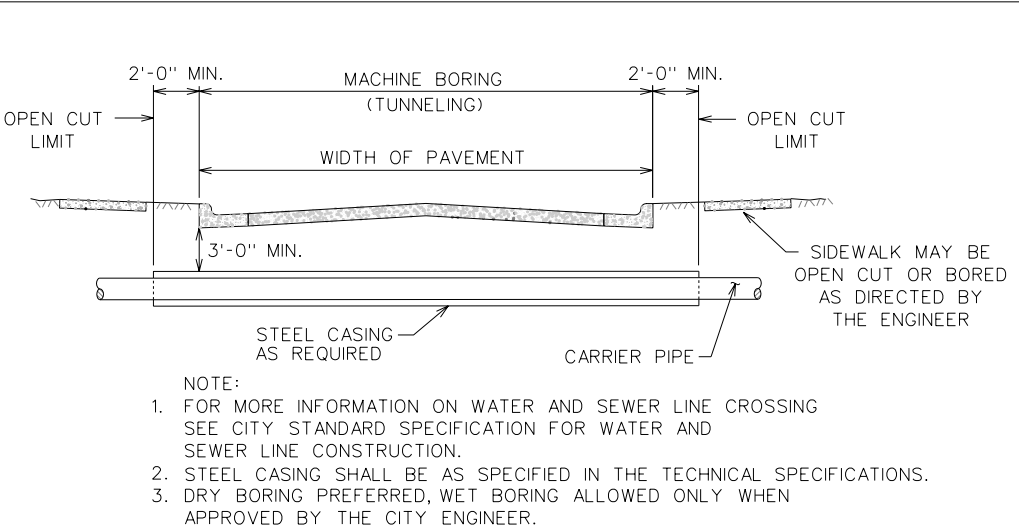
TYPICAL CONCRETE CAPPING DETAIL

S3-04



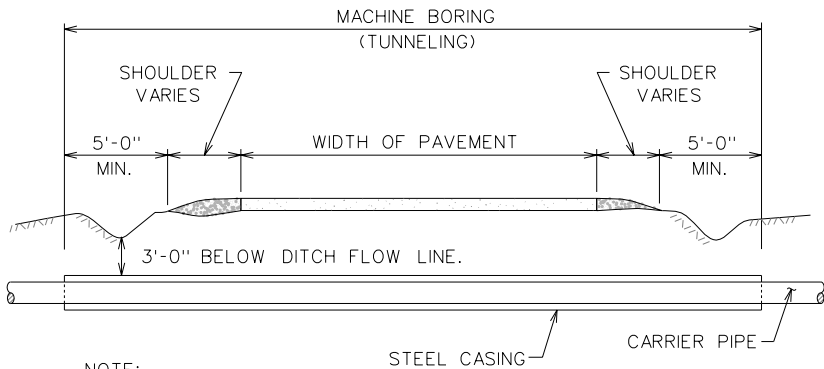
SEWER WARNING AND MANHOLE IDENTIFICATION SIGN

S3-05



TYPICAL URBAN CITY STREET CROSSING

S3-01



TYPICAL RURAL STREET CROSSING

S3-02

REVISIONS:

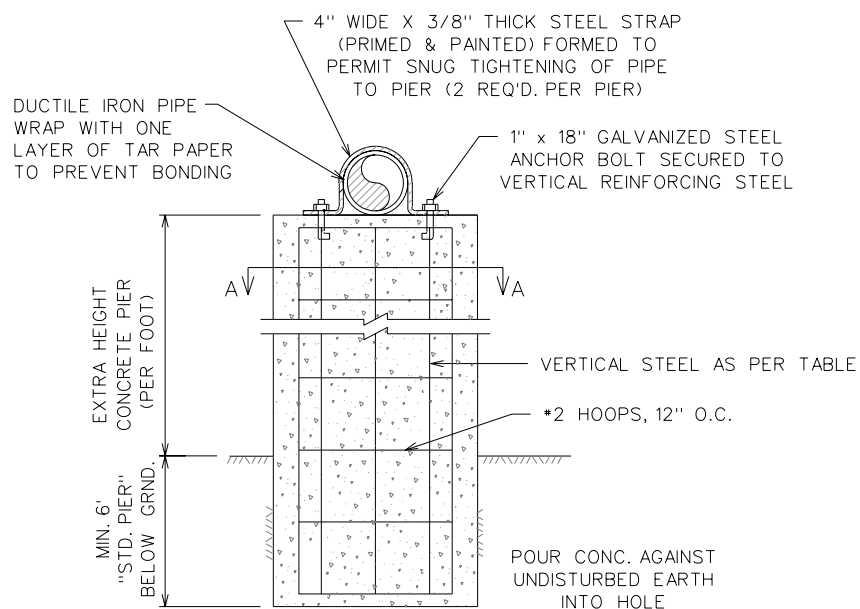
**BRYAN - COLLEGE STATION
STANDARD SEWER DETAILS**



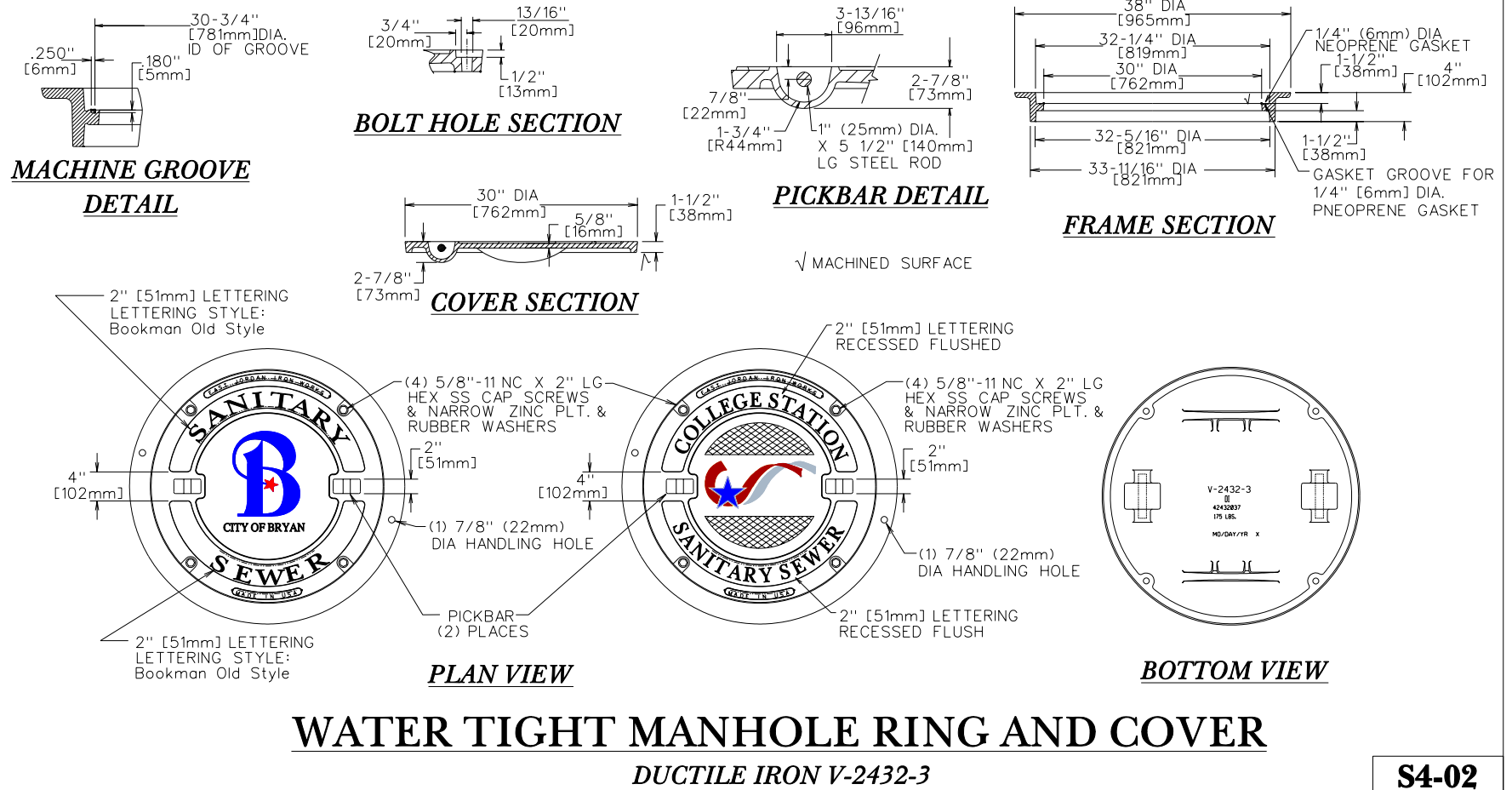
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DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.

FIGURE:
S 3
SHEET 3 OF 4

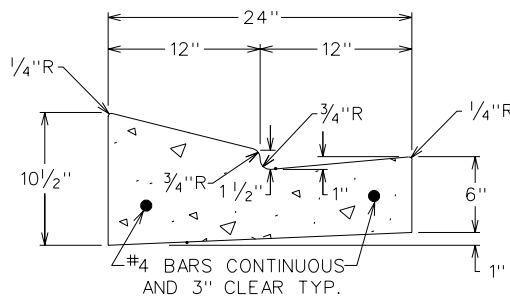
1. EACH PIER SHALL BE COMPLETED IN A SINGLE CONTINUOUS POUR.
2. CHAMFER EDGES 3/4".
3. CONTRACTOR SHALL CONSTRUCT CONCRETE PIER TO A MINIMUM DEPTH OF 6' OR TO A DEPTH WHERE A GOOD BEARING SOIL IS ENCOUNTERED.
4. ALL SHAFTS SHALL BE BORED VERTICALLY PLUMB WITHIN 2" TOLERANCE.
5. ALL INFORMATION SHOWN IS CITY MINIMUM. ALL PIERS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.



S4-00



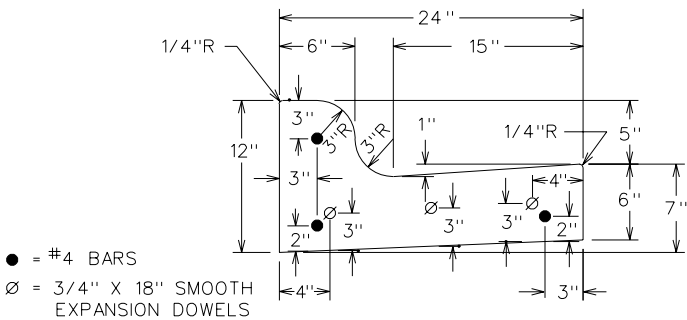
NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 60' APART AND AT ALL RADIUS POINTS, P.T.'S AND P.C.'S. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART.



24" LAY DOWN
GUTTER SECTION

ST1-00

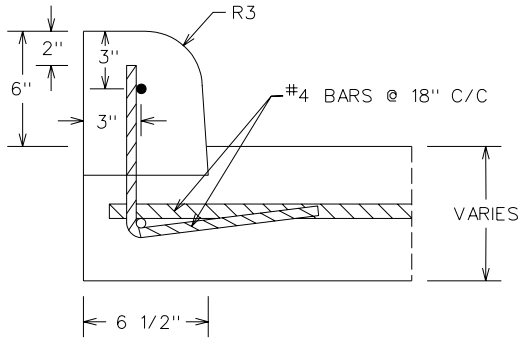
NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 60' APART AND AT ALL RADIUS POINTS, P.T.'S AND P.C.'S. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART.



● = #4 BARS
Ø = 3/4" X 18" SMOOTH
EXPANSION DOWELS

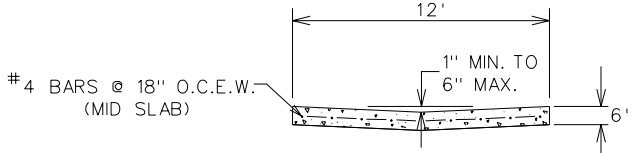
TYPICAL COMBINED
CURB & GUTTER SECTION

ST1-01

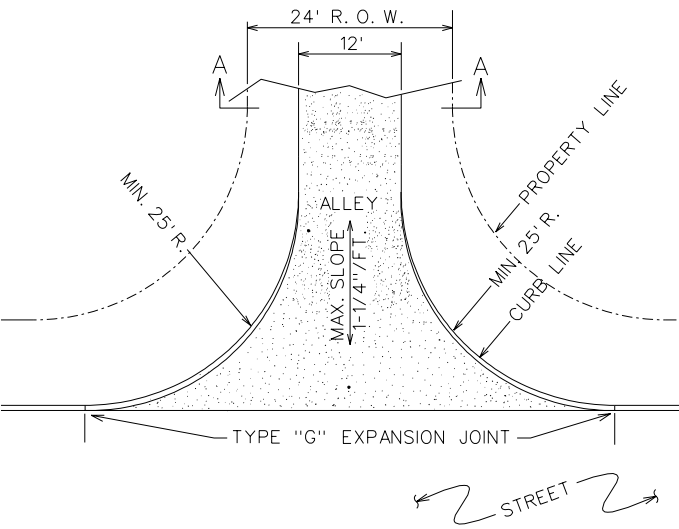


DOWELLED IN CURBS
DETAIL

ST1-02



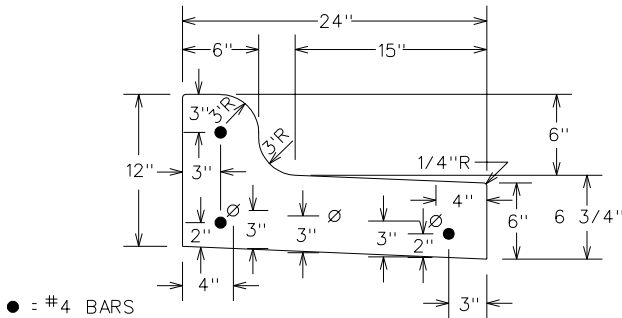
SECTION A-A



ALLEY PAVING

ST1-05

NOTE:
TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 60' APART AND AT ALL RADIUS POINTS, P.T.'s, AND P.C.'s. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART

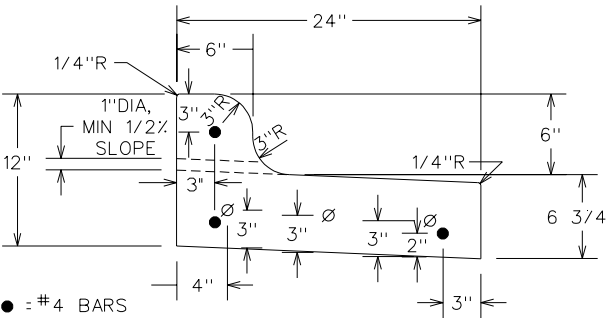


● = #4 BARS
Ø = 3/4" X 18" SMOOTH
EXPANSION DOWELS

TYPICAL COMBINED
SPILL CURB

ST1-03

NOTE:
1. TYPE "G" EXPANSION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 60' APART AND AT ALL RADIUS POINTS, P.T.'s, AND P.C.'s. TYPE "B" CONTRACTION JOINTS IN CURB & GUTTER SHALL BE SPACED AT A MAXIMUM DISTANCE OF 10' APART
2. PIPE EXTENDED 1"-2" FROM BOC TO BE COVERED WITH FABRIC AND TIED IN PLACE



● = #4 BARS
Ø = 3/4" X 18" SMOOTH
EXPANSION DOWELS

TYPICAL WEEPHOLE CURB

ST1-04

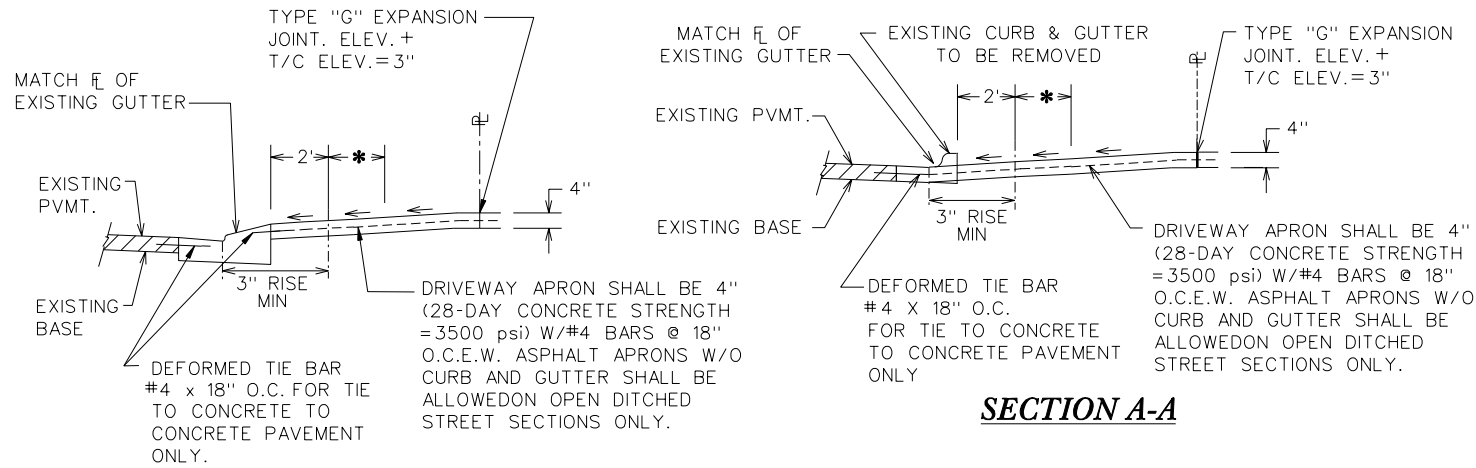
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STANDARD STREET DETAILS

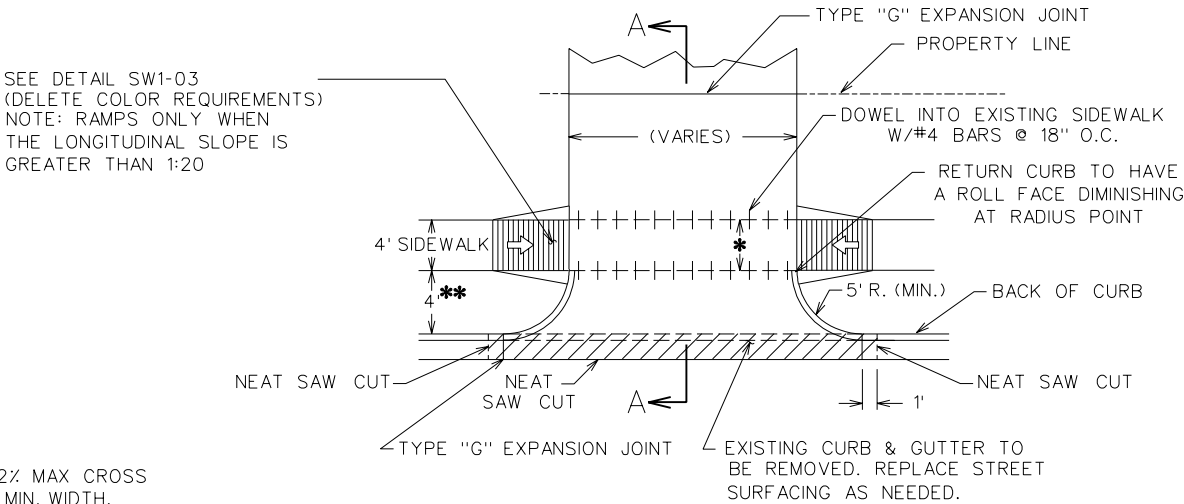


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DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.

FIGURE:
ST1
SHEET 1 OF 4

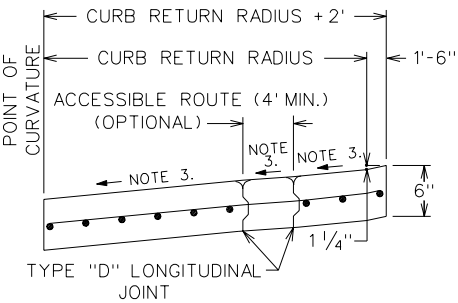


SECTION A-A
WITH LAYDOWN CURB



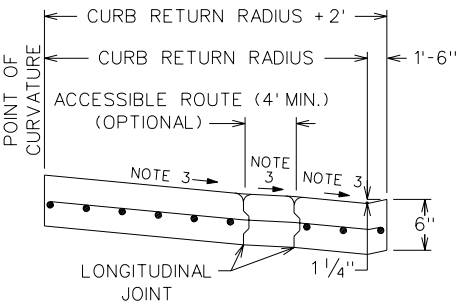
RESIDENTIAL DRIVEWAY

ST2-00



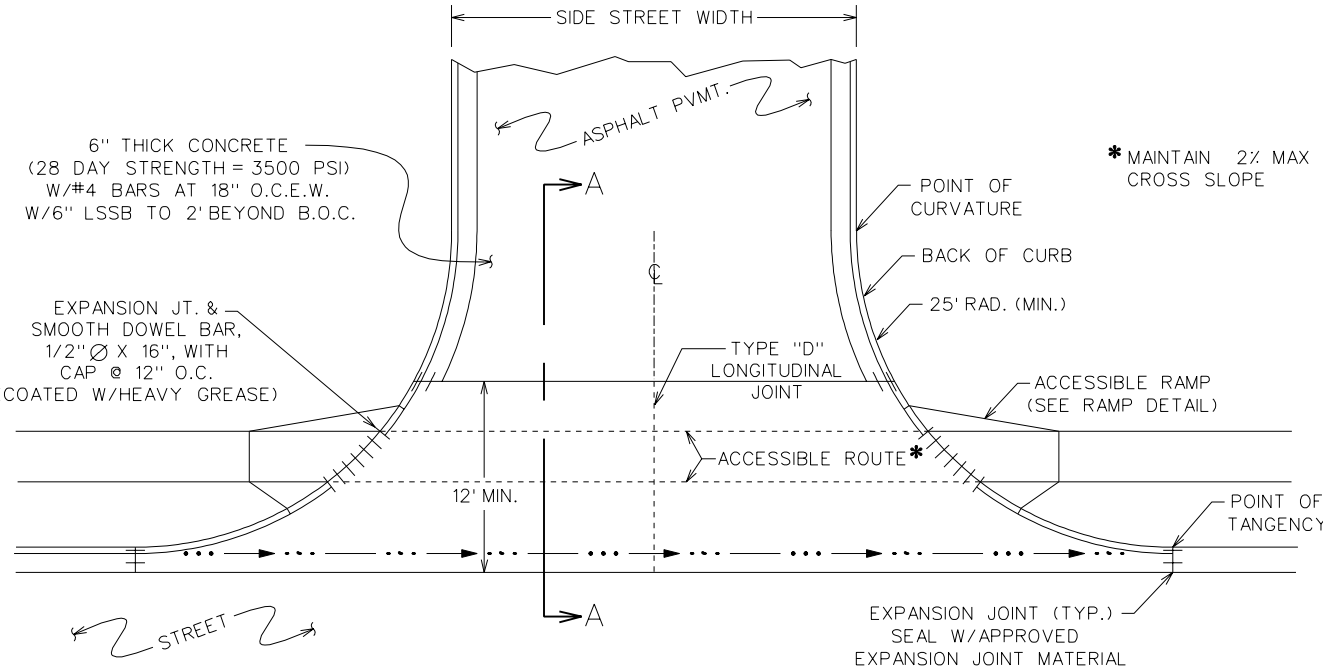
SECTION A-A

SLOPING AWAY FROM INTERSECTION



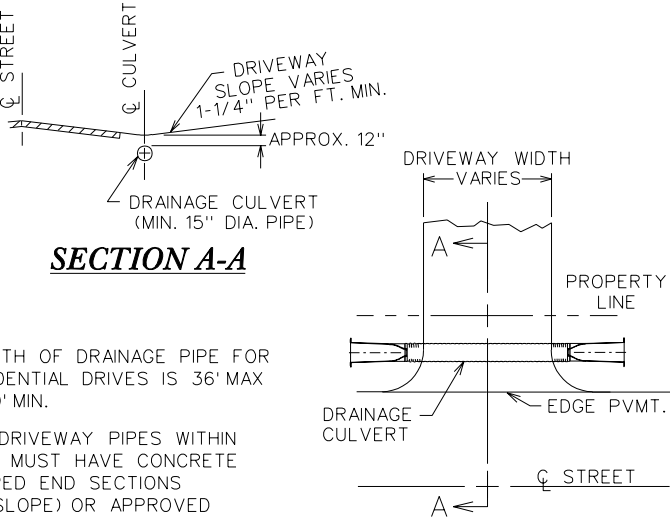
SECTION A-A

SLOPING TOWARD INTERSECTION



TYPICAL STREET CONCRETE APRON

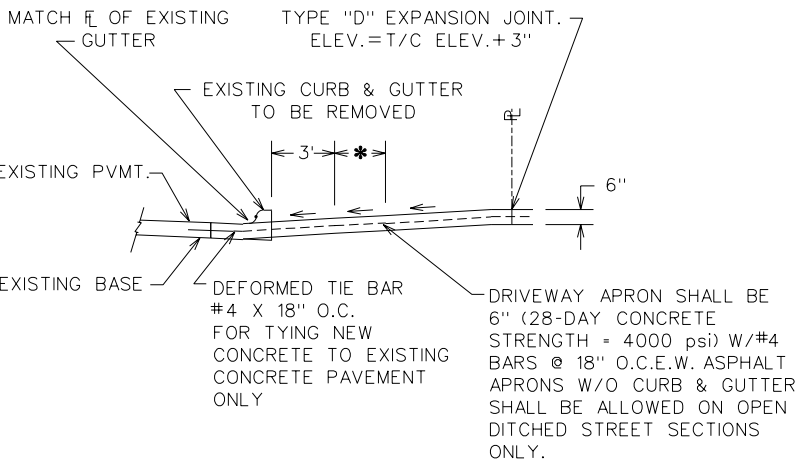
ST2-01



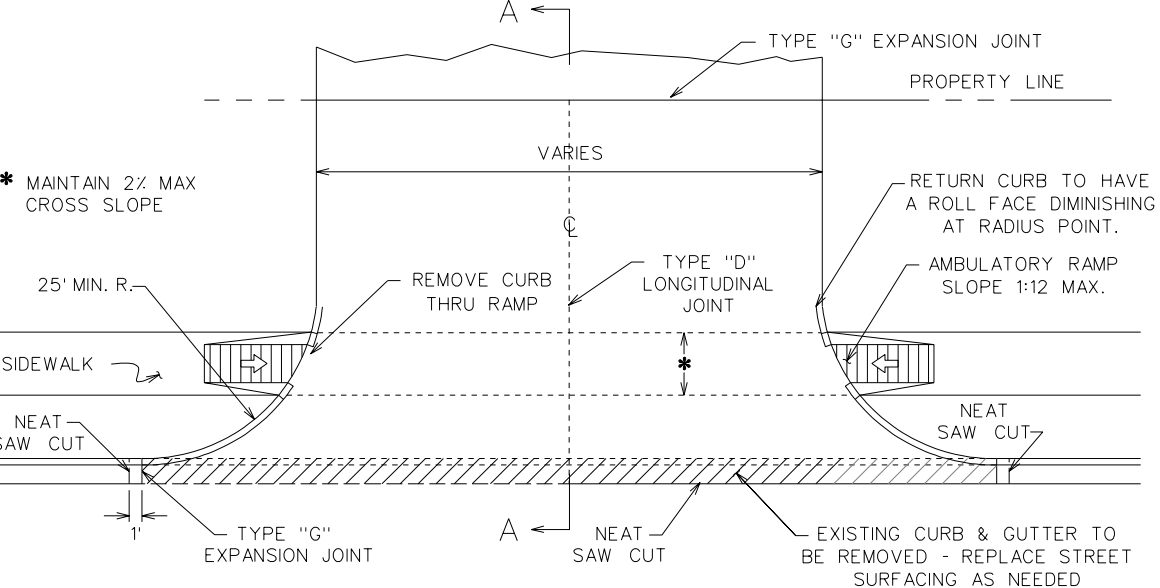
- NOTE:
1. LENGTH OF DRAINAGE PIPE FOR RESIDENTIAL DRIVES IS 36' MAX & 20' MIN.
 2. ALL DRIVEWAY PIPES WITHIN ROW MUST HAVE CONCRETE SLOPED END SECTIONS (6:1 SLOPE) OR APPROVED EQUAL.

TYPICAL DRIVEWAY ENTRANCE
WITH CULVERT

ST2-02



SECTION A-A



COMMERCIAL DRIVEWAY

ST2-03

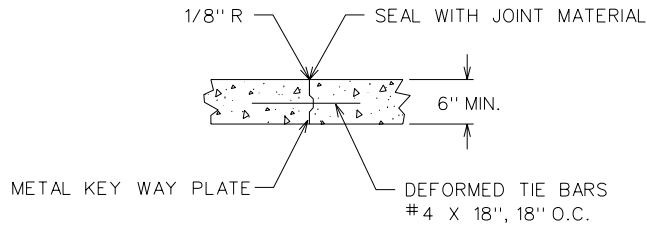
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STANDARD STREET DETAILS



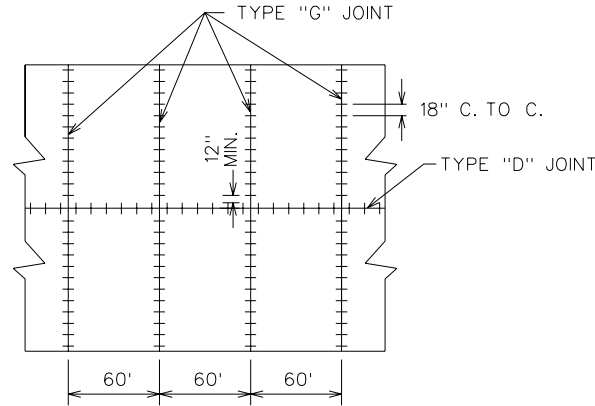
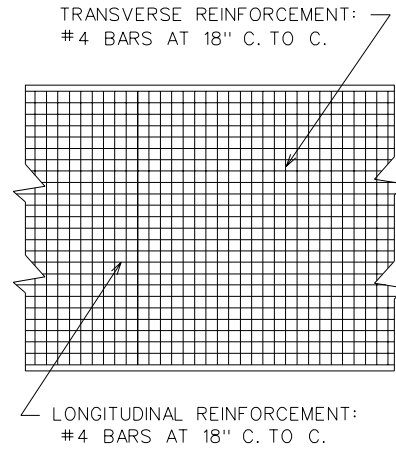
DRAWN BY: C.L.M.
DATE: 01-01-06
SCALE: N.T.S.
APPROVED: W.P.K.

FIGURE:
ST2
SHEET 2 OF 4



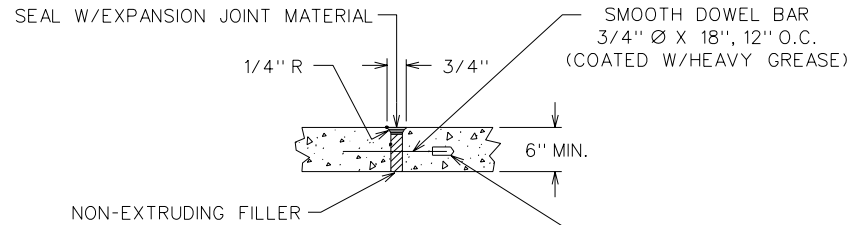
TYPE "D" LONGITUDINAL JOINT

LONGITUDINAL JOINTS SHALL BE REQUIRED ONLY ON THE CENTERLINE OF THE PAVEMENT & IN INTERSECTIONS AS DETAILED



TANGENT SECTIONS

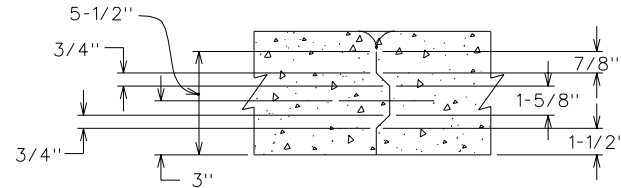
TYPICAL JOINT & REINFORCEMENT LAYOUT FOR CONCRETE PAVEMENT



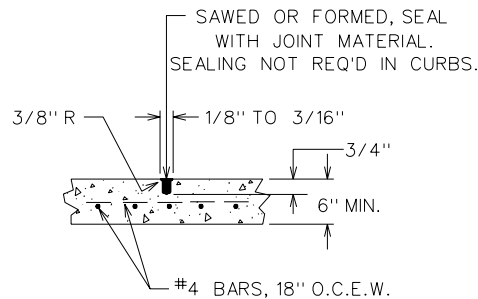
3" LONG METAL OR PLASTIC CAP, INSIDE DIAMETER TO BE 1/16" GREATER THAN DIAMETER OF DOWEL BAR. CAP MUST BE LONG ENOUGH TO COVER 2" OF DOWEL AND HAVE STOP SO END OF CAP IS 1" FROM END OF BAR.

TYPE "G" EXPANSION & CONSTRUCTION JOINT

TO BE SPACED AT 60' INTERVALS & ALL RADIUS POINTS, P.C.'S, P.T.'S, & OPPOSITE P.I.'S, & ON ALL HORIZONTAL & VERTICAL CURVES

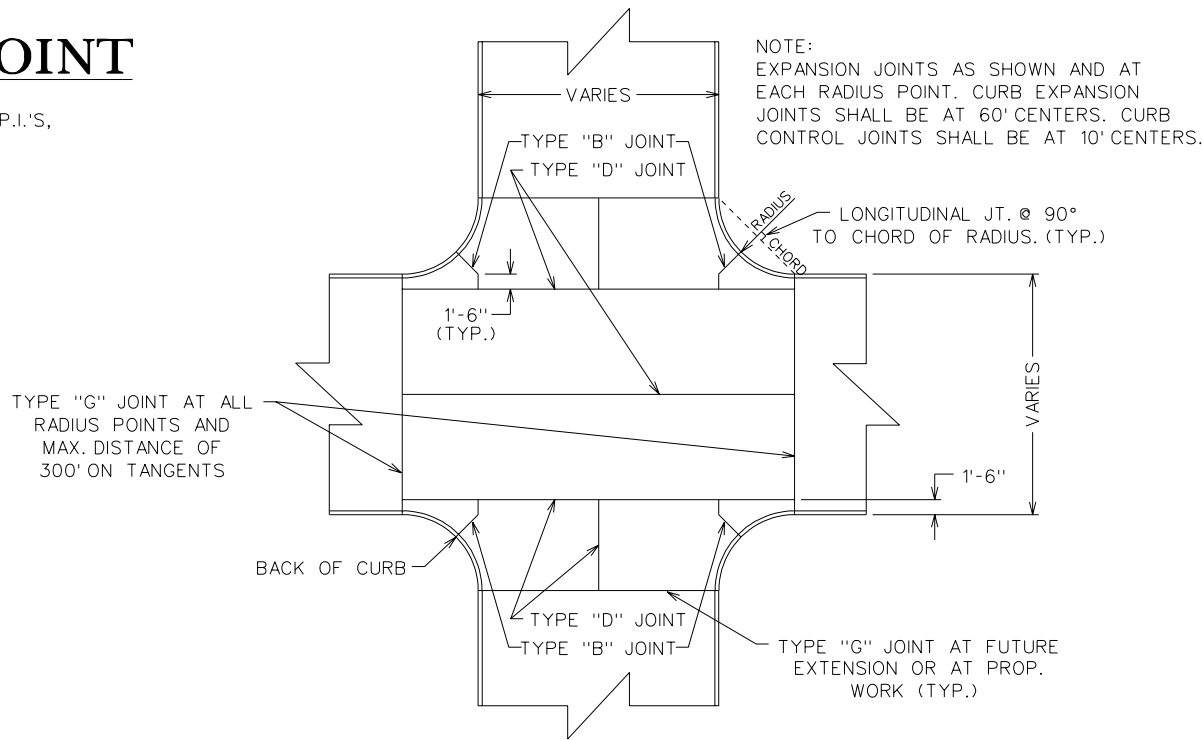


METAL KEY WAY PLATE



TYPE "B" CONTRACTION JOINT

TRANSVERSE JOINTS SHALL BE SPACED 15' CENTER TO CENTER



TYPICAL JOINT LAYOUT AT CONCRETE INTERSECTION

ST3-00

GENERAL NOTES:

ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

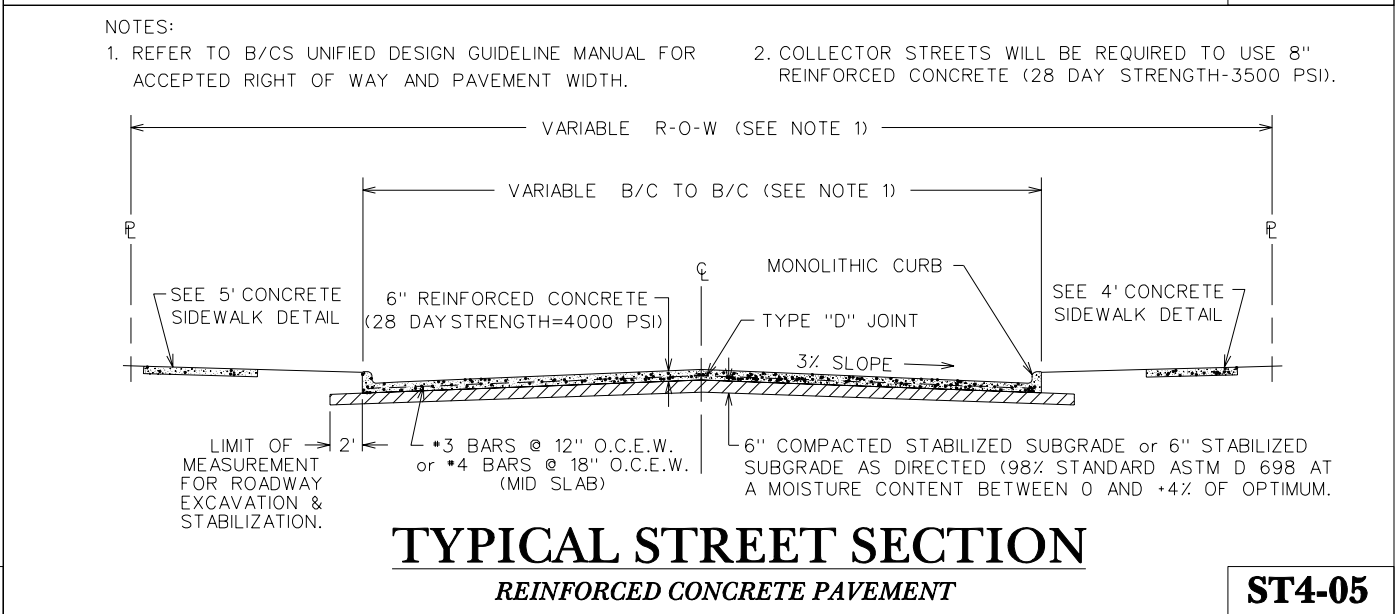
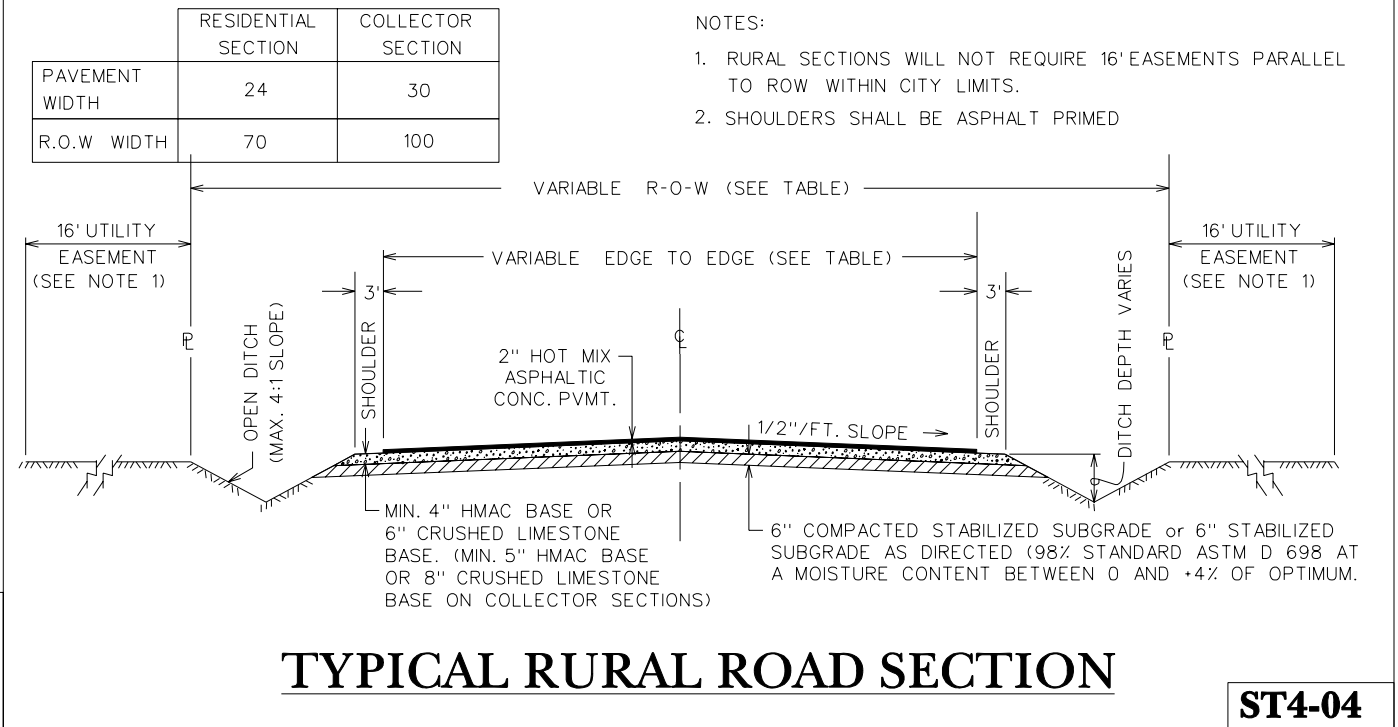
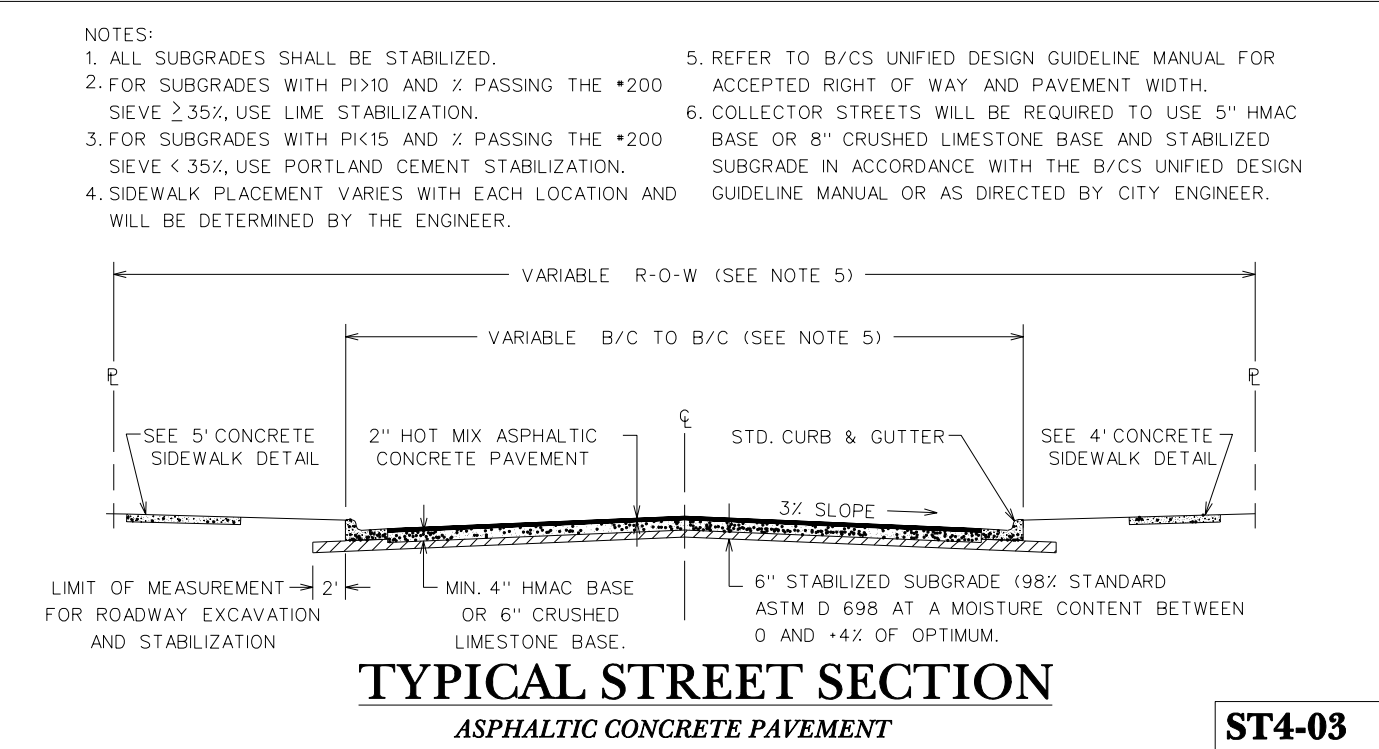
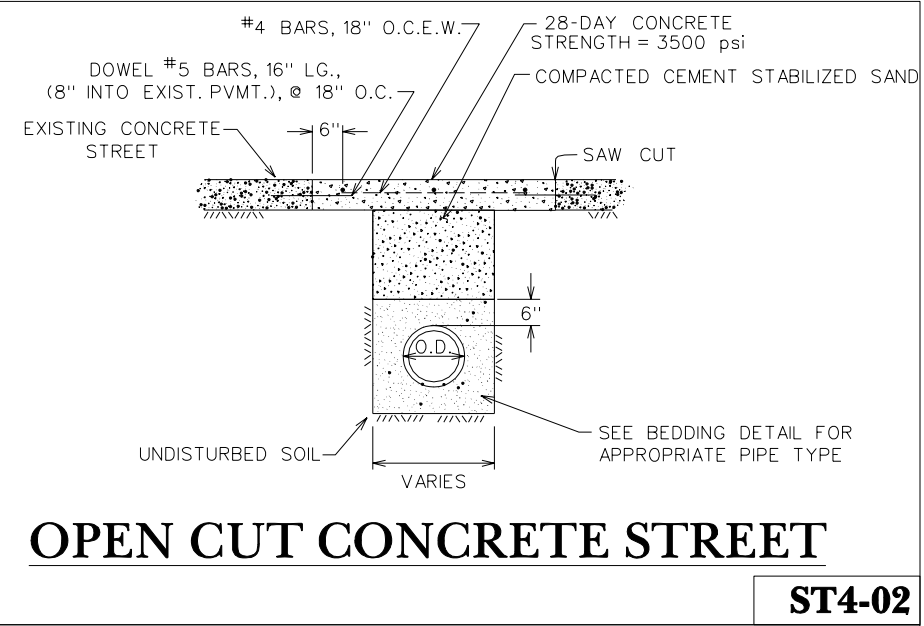
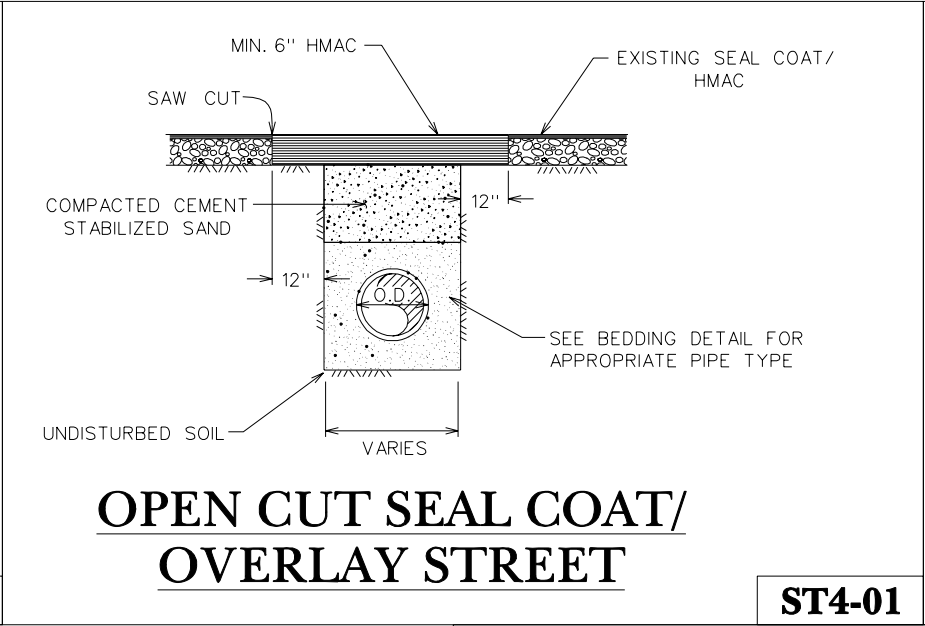
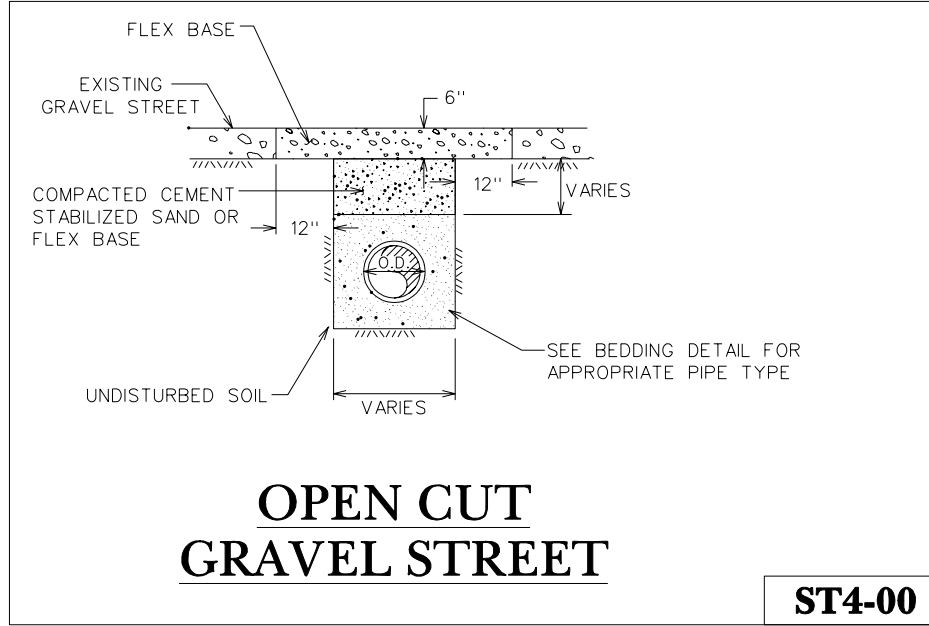
REVISIONS:

BRYAN - COLLEGE STATION
STANDARD STREET DETAILS



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DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.

FIGURE:
ST3
SHEET 3 OF 4

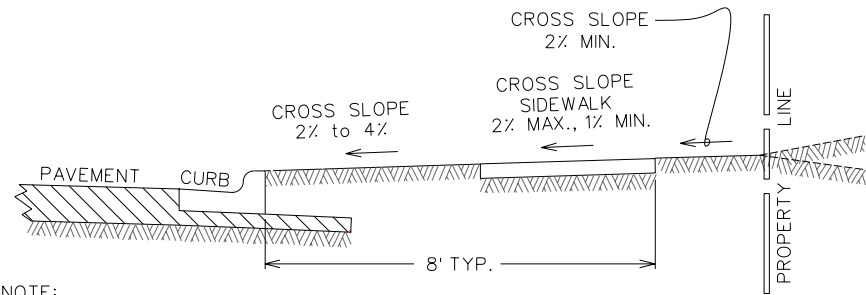


REVISIONS:

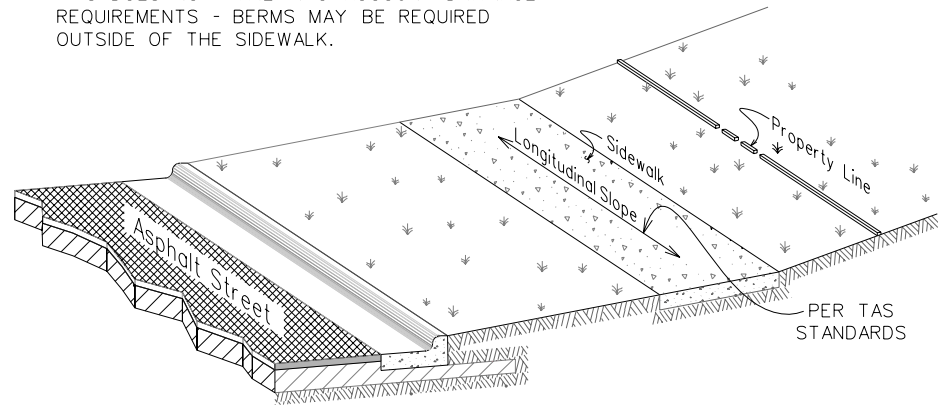
BRYAN - COLLEGE STATION
STANDARD STREET DETAILS



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DATE: 01-01-06
SCALE: N.T.S.
APPROVED: W.P.K.
FIGURE:
ST4
SHEET 4 OF 4

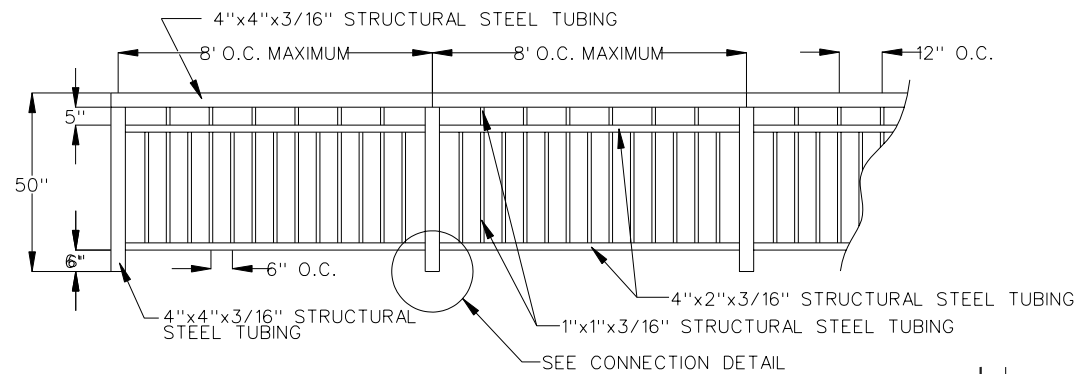


NOTE:
THIS DOES NOT TAKE INTO ACCOUNT DRAINAGE REQUIREMENTS - BERMS MAY BE REQUIRED OUTSIDE OF THE SIDEWALK.

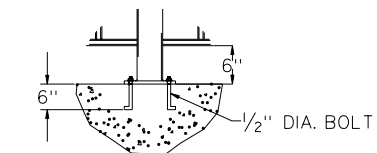


SIDEWALK SLOPE REQUIREMENTS

SW1-00



TYPICAL PEDESTRIAN GUARDRAIL



CONNECTION DETAIL

SW1-01

GENERAL NOTES:

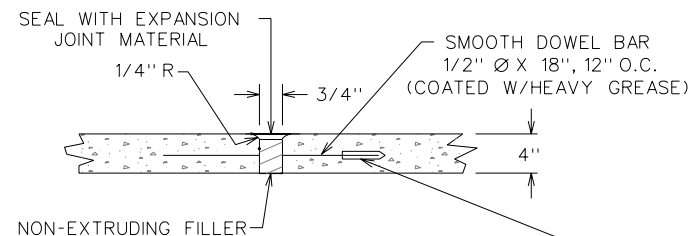
ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

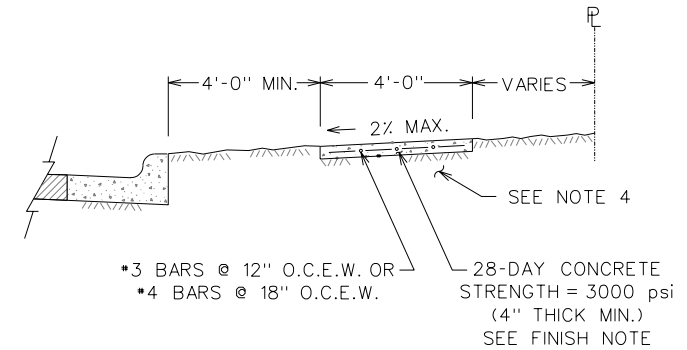
NOTES:

1. SIDEWALK PLACEMENT SHALL BE IN ACCORDANCE WITH B/CS UNIFIED DESIGN GUIDELINES.
2. FINISH: LIGHT BROOM FINISH. JOINTS TO BE TOOLED 1" DEEP @ 4' INTERVALS. EXPANSION JOINTS @ 60' O.C., CONTRACTION JOINTS @ 4' O.C.
3. DOWEL IN AND TIE TO ANY CONCRETE STRUCTURE ADJACENT TO SIDEWALK (DRIVEWAY, INLET BOX, CURB, JUNCTION BOX, ETC.) WITH #3 x 12" BARS @ 12" O.C. OR #4 x 12" BARS @ 18" O.C.
4. COMPACTION: COMPACTED SUBGRADE MATERIAL COMPACTED TO A DENSITY AT LEAST 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY PROCTOR COMPACTION TEST ASTM D698 (STANDARD) AND SHALL BE 0-4% WET OF THE OPTIMUM MOISTURE CONTENT
5. A MINIMUM CLEAR PEDESTRIAN WIDTH AS DEFINED BY TAS AND ADA SHALL BE PROVIDED FOR ENTIRE LENGTH OF SIDEWALK.

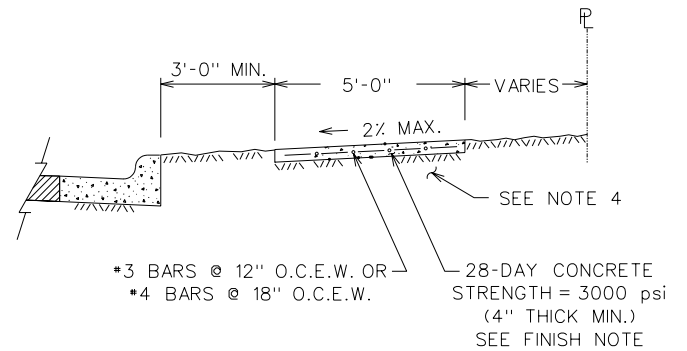


3" LONG METAL OR PLASTIC CAP, INSIDE DIAMETER TO BE 1/16" GREATER THAN DIAMETER OF DOWEL BAR. CAP MUST BE LONG ENOUGH TO COVER 2" OF DOWEL AND HAVE STOP SO END OF CAP IS 1" FROM END OF BAR.

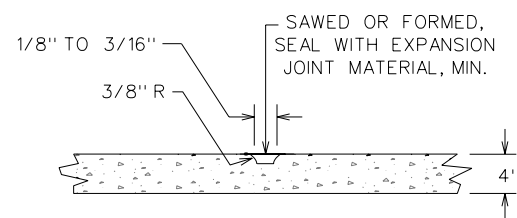
SIDEWALK EXPANSION & CONSTRUCTION JOINT



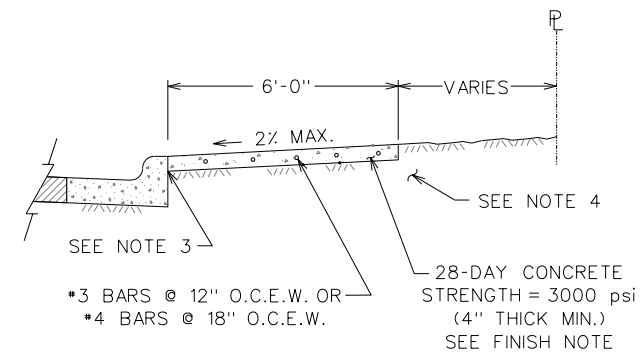
4' CONCRETE SIDEWALK



5' CONCRETE SIDEWALK



SIDEWALK CONTRACTION JOINT



6' CONCRETE SIDEWALK

CONCRETE SIDEWALK

SW1-02

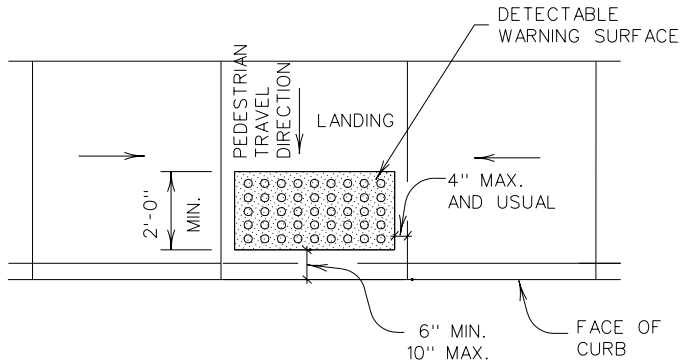
REVISIONS:

BRYAN - COLLEGE STATION
STANDARD SIDEWALK DETAILS



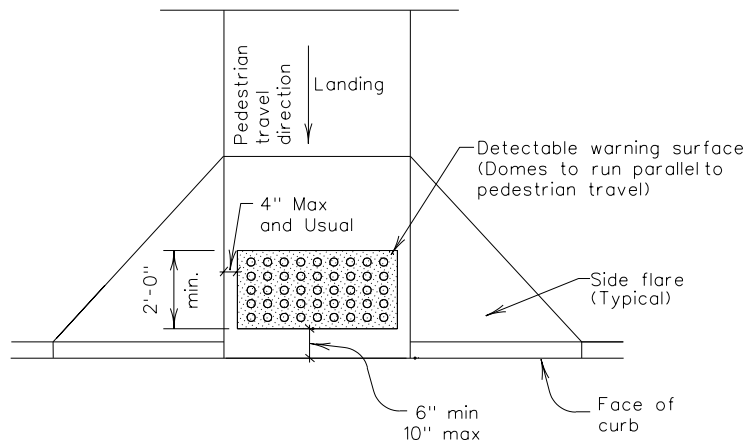
DRAWN BY: C.L.M.
DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.

FIGURE:
SW1
SHEET 1 OF 4



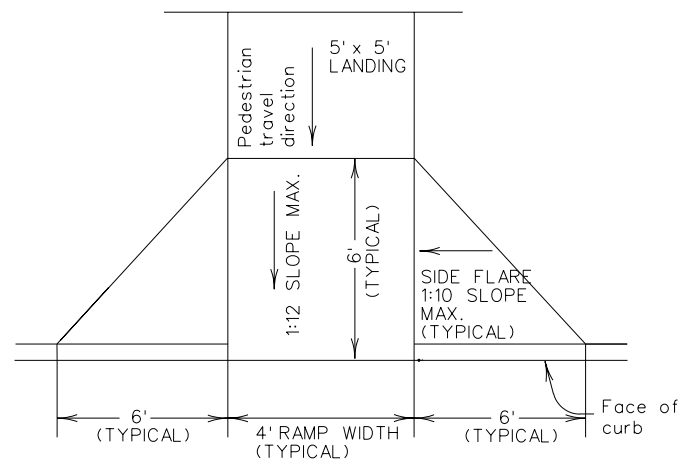
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE

SW2-00



TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN

SW2-01



TYPICAL AMBULATORY RAMP W/ FLARED WINGS

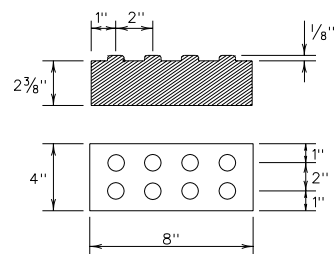
SW2-02

GENERAL NOTES FOR DETECTABLE WARNINGS

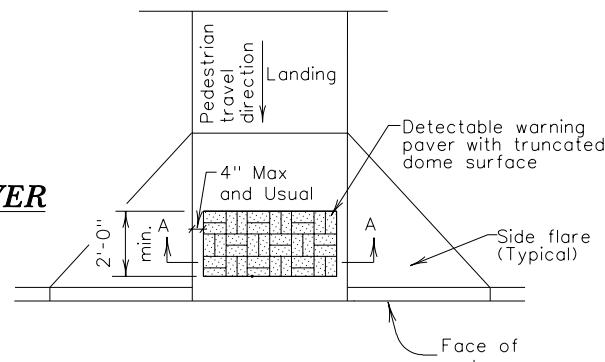
1. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 4.29 OF THE TEXAS ACCESSIBILITY STANDARDS (TAS). THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
2. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
3. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
4. SHADED AREAS ON SHEETS 3 AND 4 INDICATE THE APPROXIMATE LOCATION FOR THE DETECABLE WARNING SURFACE FOR EACH CURB RAMP TYPE.
5. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
6. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS A MINIMUM OF 6" AND A MAXIMUM OF 10" FROM THE EXTENSION OF THE FACE OF CURB. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
7. TxDOT MAINTAINS A LIST OF QUALIFIED DETECABLE WARNING MATERIALS.

**PEDESTRIAN FACILITIES
GENERAL NOTES**

1. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS AS DIRECTED.
2. LANDINGS SHALL BE A 5' X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION.
3. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4' X 4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
4. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP IS 2%.
5. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
6. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT RELECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC §68.102.
7. TO SERVE AS A PEDESTRIAN REFUGE AREA, THE MEDIAN SHOULD BE A MINIMUM OF 5' WIDE. MEDIANS SHOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR THROUGH THEM.
8. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. EXISTING FEATURES THAT COMPLY WITH TAS MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
10. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. PROVIDE CURB RAMPS WHEREVER ON ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
11. SEPARATE CURB RAMP AND LANDINGS FROM ADJACENT SIDEWALK AND ANY OTHER ELEMENTS WITH PREMOLED OR BOARD JOINT OF 3/4" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
12. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
13. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.



DETECTABLE WARNING PAVER



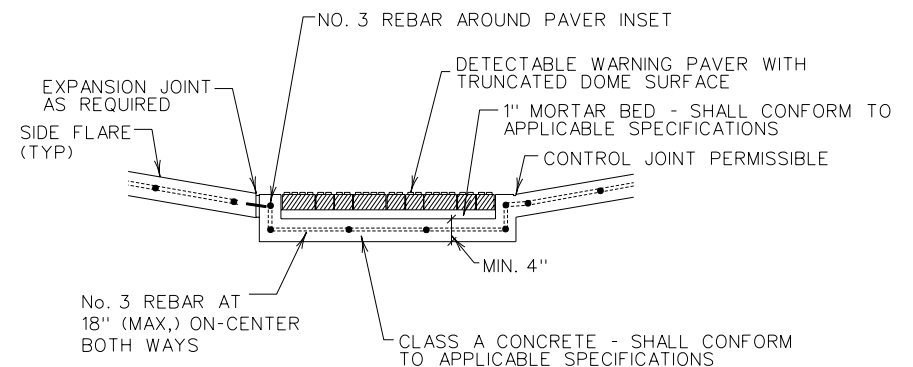
**TRUNCATED DOME PATTERN
CURB RAMP**

DETECTABLE WARNING PAVER (OPTION)

GENERAL NOTES (PAVERS)

FURNISH DETECTABLE WARNING PAVER UNITS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33. LAY IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.

LAY FULL-SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING PAVER UNITS USING A POWER SAW.



SECTION A-A

SW2-03

REVISIONS:

**BRYAN - COLLEGE STATION
STANDARD SIDEWALK DETAILS**

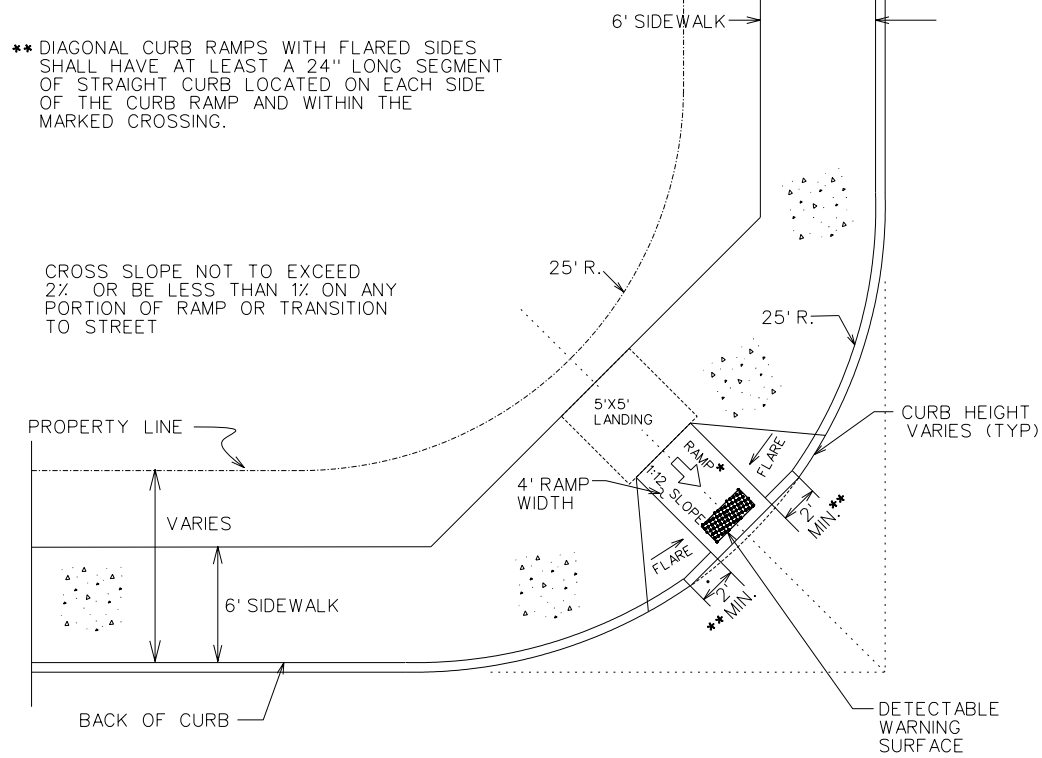


DRAWN BY: C.L.M.
DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.

FIGURE:
SW2
SHEET 2 OF 4

* SURFACE FINISH SHALL COMPLY WITH TAS REQUIREMENTS: FULL WIDTH AND DEPTH OF CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES. WARNING SURFACE SHALL BE DARK RED IN COLOR.

** DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE AT LEAST A 24" LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING.

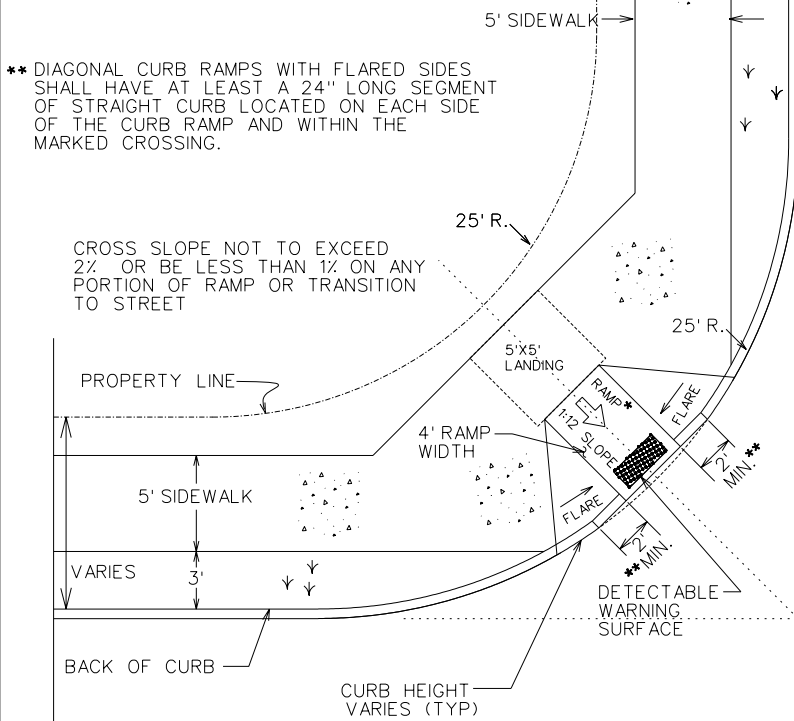


**COMMERCIAL 6' SIDEWALK AMBULATORY
RAMP AT STREET INTERSECTION**

SW3-00

* SURFACE FINISH SHALL COMPLY WITH TAS REQUIREMENTS: FULL WIDTH AND DEPTH OF CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES. WARNING SURFACE SHALL BE DARK RED IN COLOR.

** DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE AT LEAST A 24" LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING.

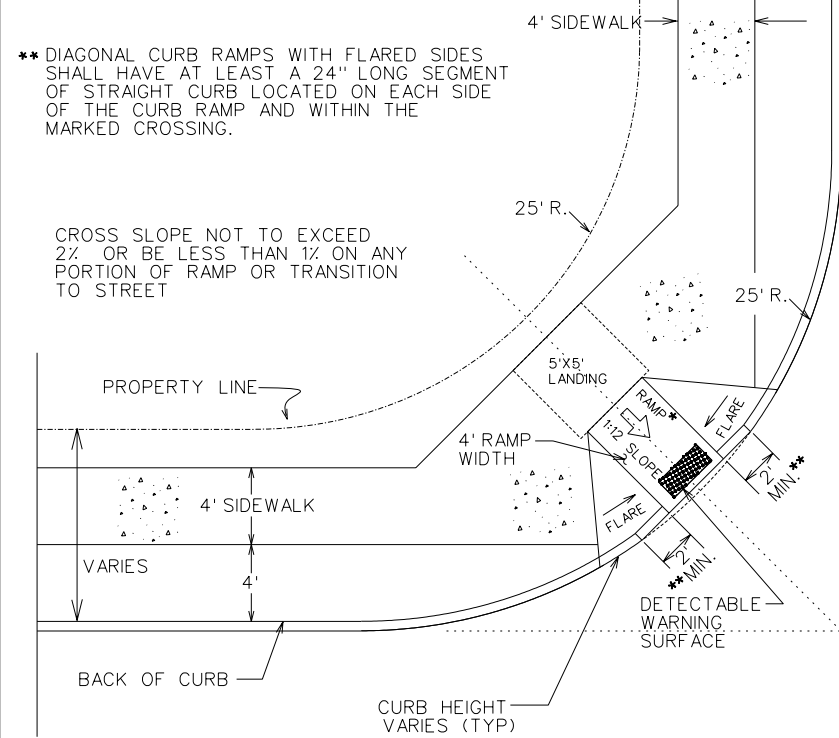


**RESIDENTIAL 5' SIDEWALK AMBULATORY
RAMP AT STREET INTERSECTION**

SW3-01

* SURFACE FINISH SHALL COMPLY WITH TAS REQUIREMENTS: FULL WIDTH AND DEPTH OF CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES. WARNING SURFACE SHALL BE DARK RED IN COLOR.

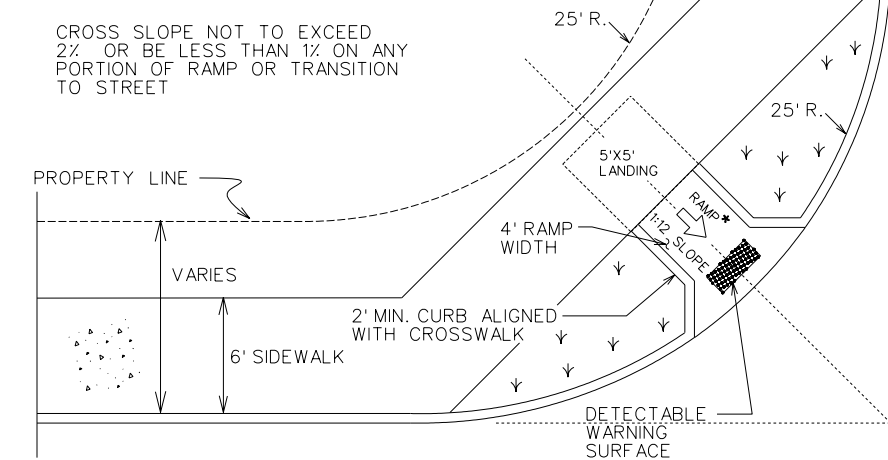
** DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE AT LEAST A 24" LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING.



**RESIDENTIAL 4' SIDEWALK AMBULATORY
RAMP AT STREET INTERSECTION**

SW3-02

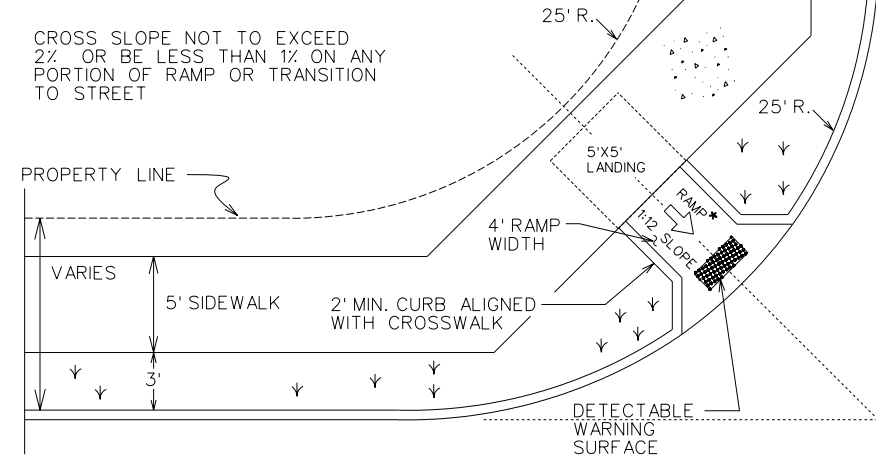
* SURFACE FINISH SHALL COMPLY WITH TAS REQUIREMENTS: FULL WIDTH AND DEPTH OF CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES. WARNING SURFACE SHALL BE DARK RED IN COLOR.



**COMMERCIAL 6' SIDEWALK AMBULATORY
RAMP AT STREET INTERSECTION**

SW3-03

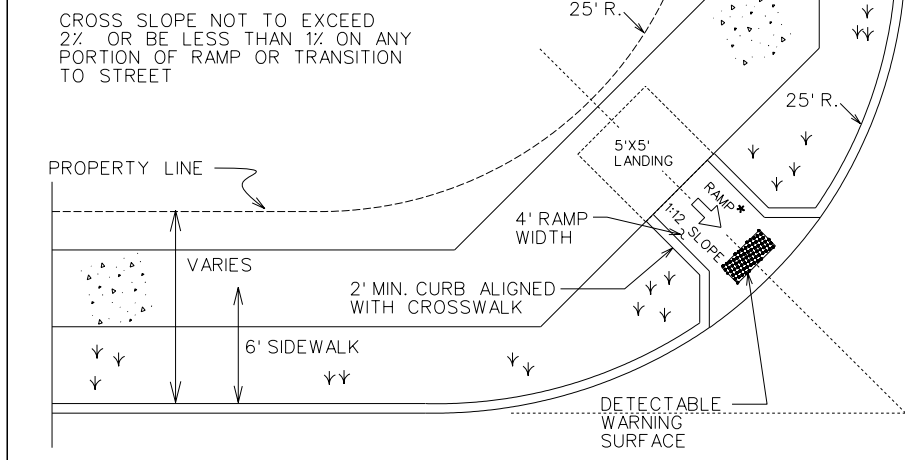
* SURFACE FINISH SHALL COMPLY WITH TAS REQUIREMENTS: FULL WIDTH AND DEPTH OF CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES. WARNING SURFACE SHALL BE DARK RED IN COLOR.



**RESIDENTIAL 5' SIDEWALK AMBULATORY
RAMP AT STREET INTERSECTION**

SW3-04

* SURFACE FINISH SHALL COMPLY WITH TAS REQUIREMENTS: FULL WIDTH AND DEPTH OF CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES. WARNING SURFACE SHALL BE DARK RED IN COLOR.



**RESIDENTIAL 4' SIDEWALK AMBULATORY
RAMP AT STREET INTERSECTION**

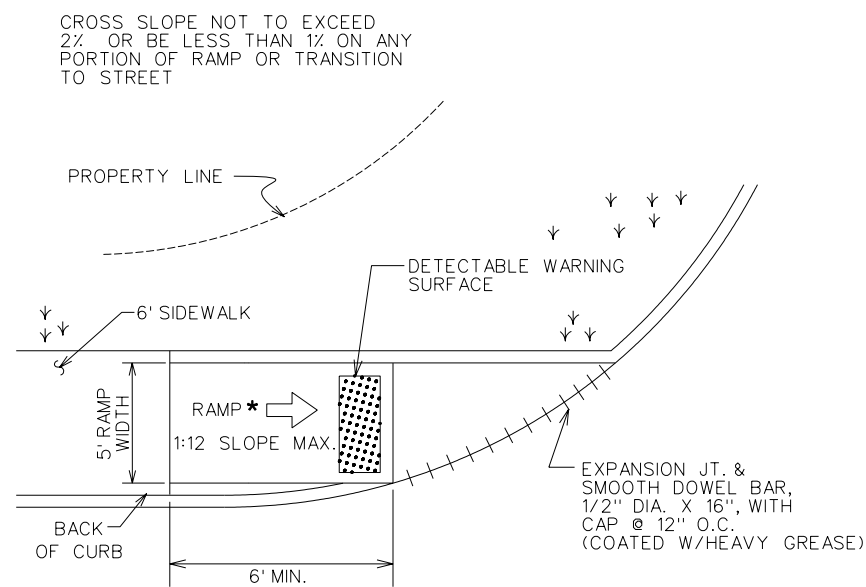
SW3-05

REVISIONS:

**BRYAN - COLLEGE STATION
STANDARD SIDEWALK DETAILS**

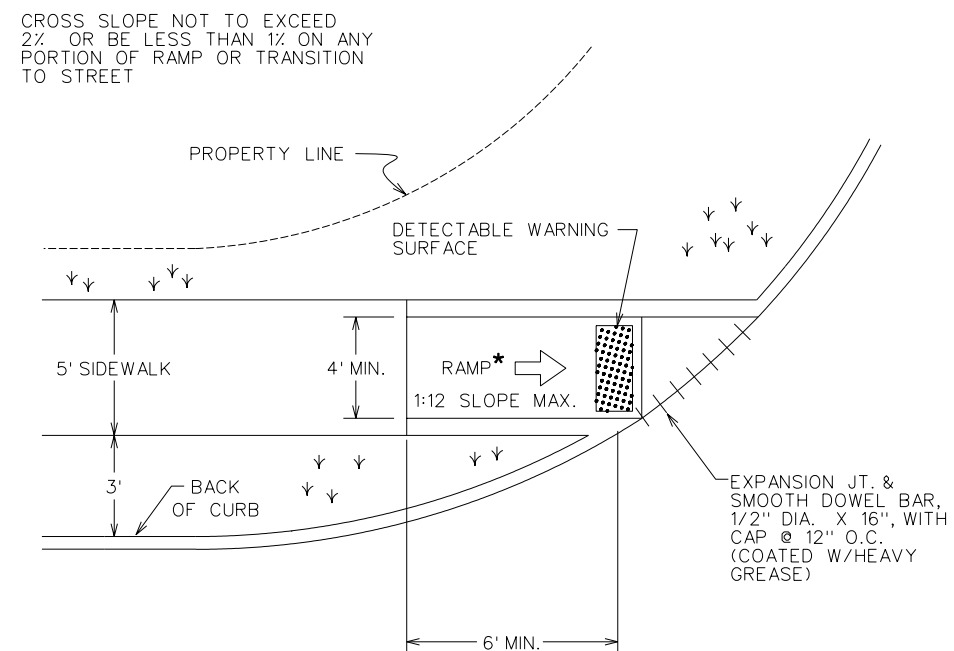


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DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.
FIGURE:
SW3
SHEET 3 OF 4



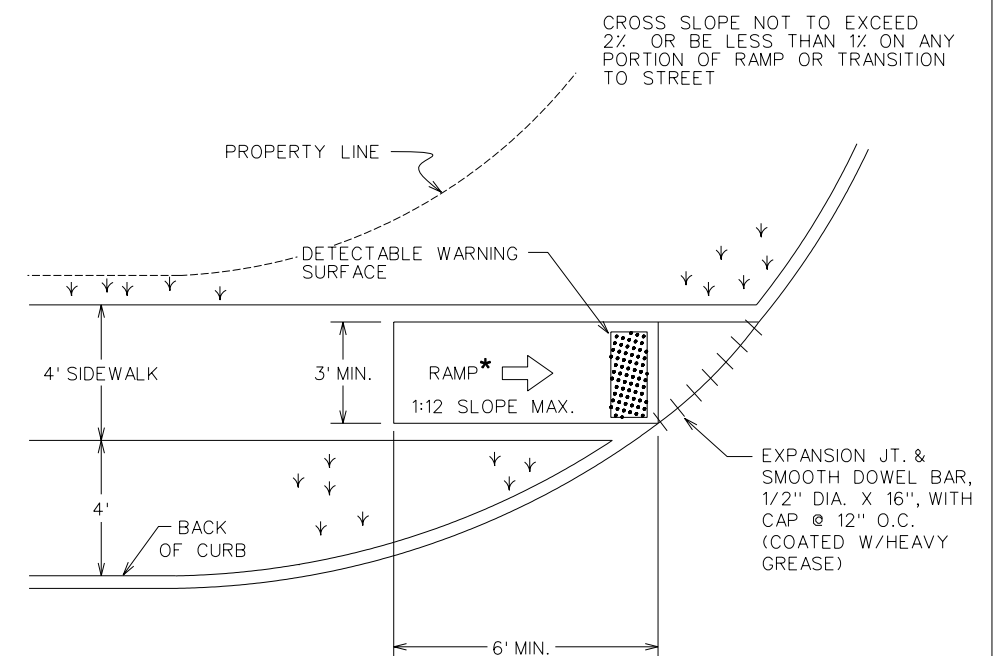
COMMERCIAL 6' SIDEWALK
AMBULATORY RAMP
AT STREET INTERSECTION & DRIVES

SW4-00



COMMERCIAL 5' SIDEWALK
AMBULATORY RAMP
AT STREET INTERSECTION & DRIVES

SW4-01



RESIDENTIAL 4' SIDEWALK
AMBULATORY RAMP
AT STREET INTERSECTION & DRIVES

SW4-02

BRYAN - COLLEGE STATION STANDARD SIDEWALK DETAILS



RAWN BY: C.L.M.

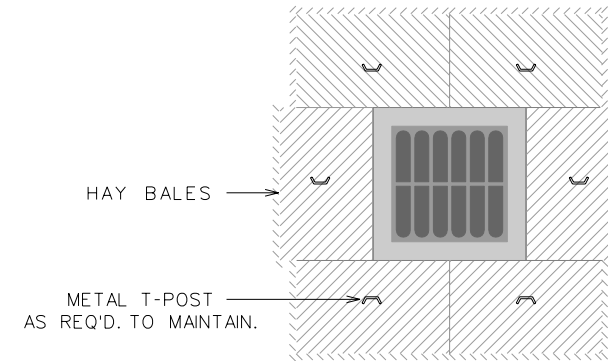
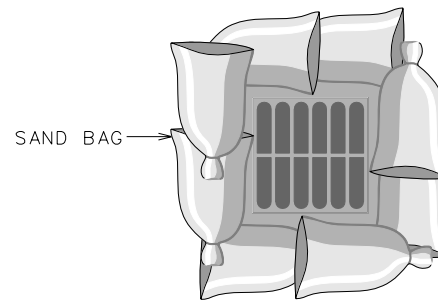
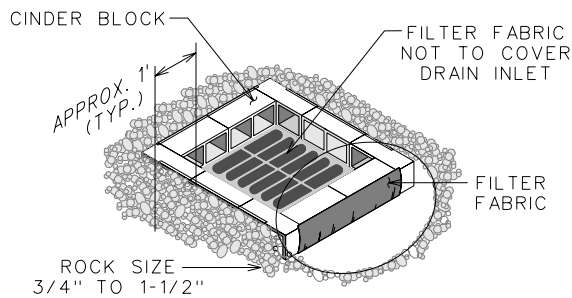
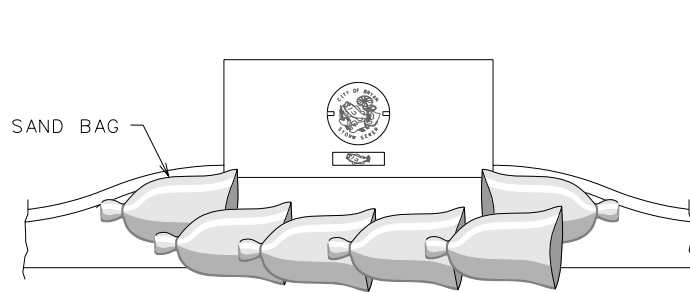
DATE: 01-01-06

SCALE: N T S

APPROVED: W.P.K.

FIGURE 1:

S W 4
SHEET 4 OF 4



NOTE:

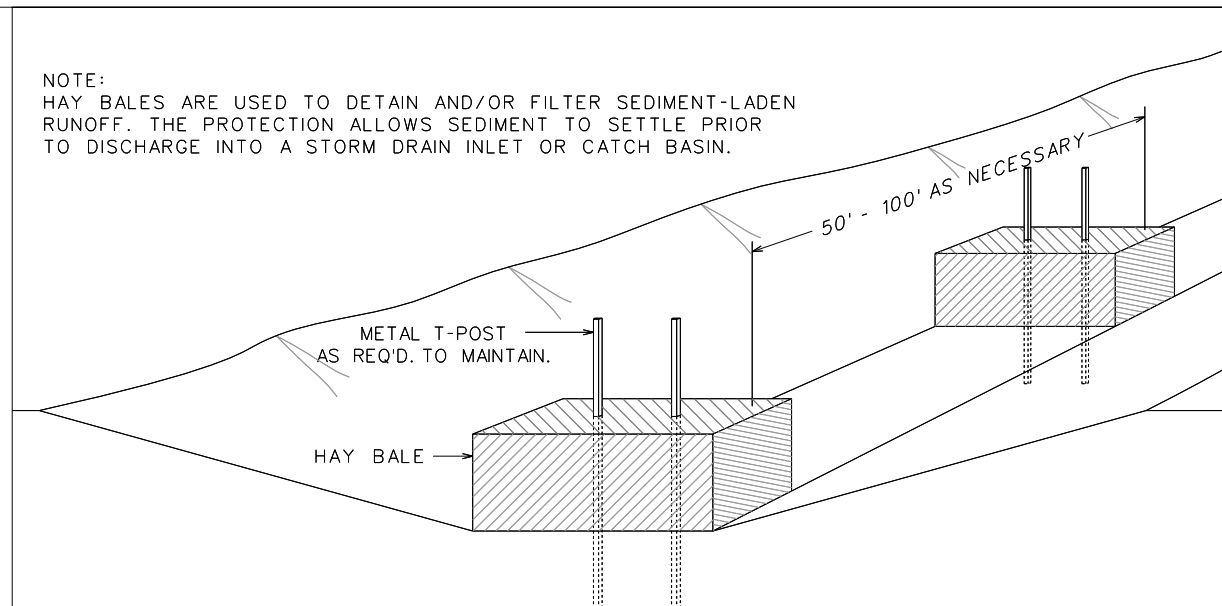
TEMPORARY DEVICES AROUND STORM DRAINS ARE USED TO DETAIN AND/OR FILTER SEDIMENT-LADEN RUNOFF. THE PROTECTION ALLOWS SEDIMENT TO SETTLE PRIOR TO DISCHARGE INTO A STORM DRAIN INLET OR CATCH BASIN. SAND BAGS SHALL BE UV RESISTANT AND MUST NOT DEGRADE DUE TO ATMOSPHERIC CONDITIONS. SAND BAGS SHALL BE REPLACED UPON FIRST SIGN OF DETERIORATION.

STORM DRAIN INLET PROTECTION

SWPP1-00

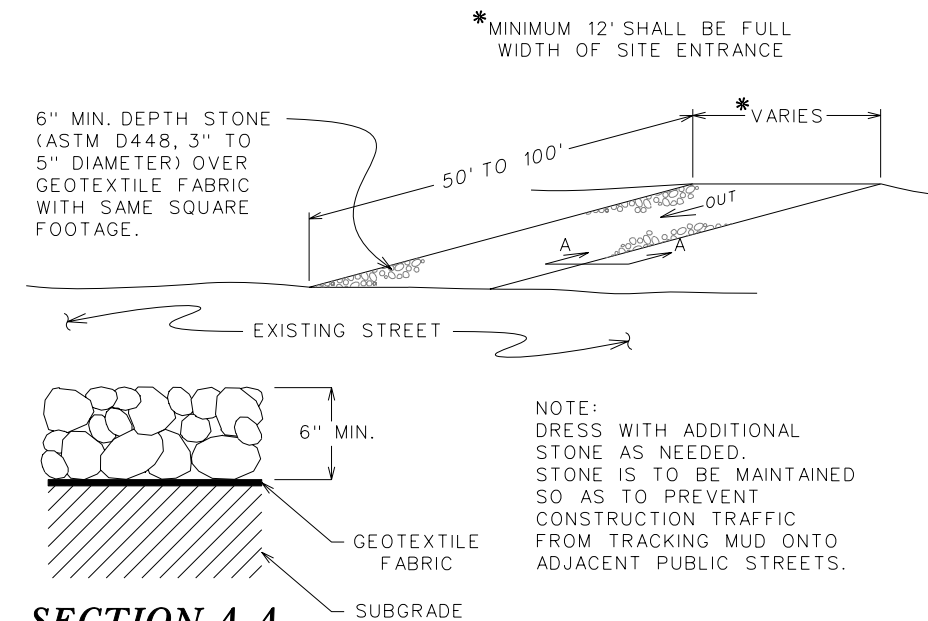
NOTE:

HAY BALES ARE USED TO DETAIN AND/OR FILTER SEDIMENT-LADEN RUNOFF. THE PROTECTION ALLOWS SEDIMENT TO SETTLE PRIOR TO DISCHARGE INTO A STORM DRAIN INLET OR CATCH BASIN.



EROSION CONTROL ALONG DITCH

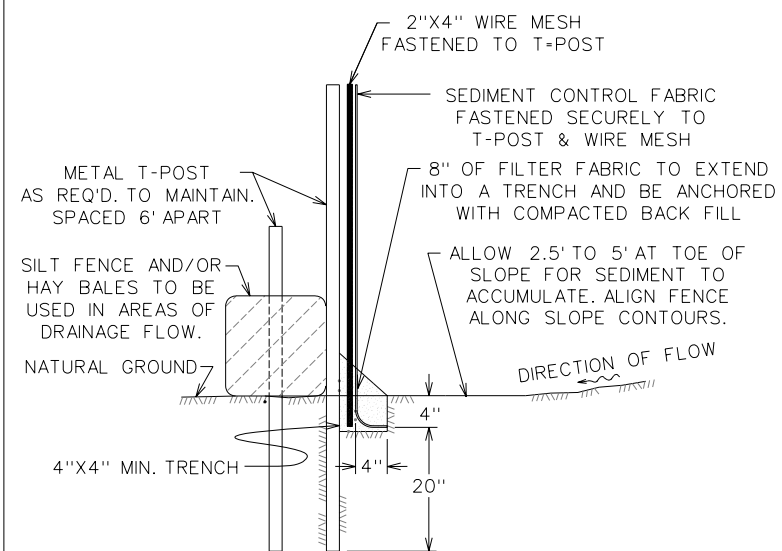
SWPP1-01



SECTION A-A

CONSTRUCTION EXIT SILT CONTROL

SWPP1-02



SILT FENCE ASSEMBLY

SWPP1-03

GENERAL NOTES:

ALL AREAS WHERE EXISTING VEGETATION AND GRASS COVER HAVE BEEN BARED BY CONSTRUCTION SHALL BE ADEQUATELY BLOCK SODDED OR HYDROMULCHED AND WATERED UNTIL GROWTH IS ESTABLISHED. IN DEVELOPED AREAS WHERE GRASS IS PRESENT, BLOCK SOD WILL BE REQUIRED. BARED AREAS SHALL BE SEEDED OR SODDED WITHIN 14 CALENDAR DAYS OF LAST DISTURBANCE.

APPROVED EROSION CONTROL MEASURES MUST BE INSTALLED DURING THE ENTIRE TIME THAT EARTH HAS BEEN BARED BY CONSTRUCTION AND SHALL STAY IN PLACE UNTIL ACCEPTABLE VEGETATIVE GROWTH IS ESTABLISHED AFTER CONSTRUCTION IS COMPLETE AND THEN REMOVED BY CONTRACTOR.

ALL EROSION CONTROL MEASURES SHOULD BE CLEANED OF SILT AFTER EVERY RAIN.

REVISIONS:

BRYAN - COLLEGE STATION
STANDARD STORM WATER
POLLUTION PREVENTION DETAILS

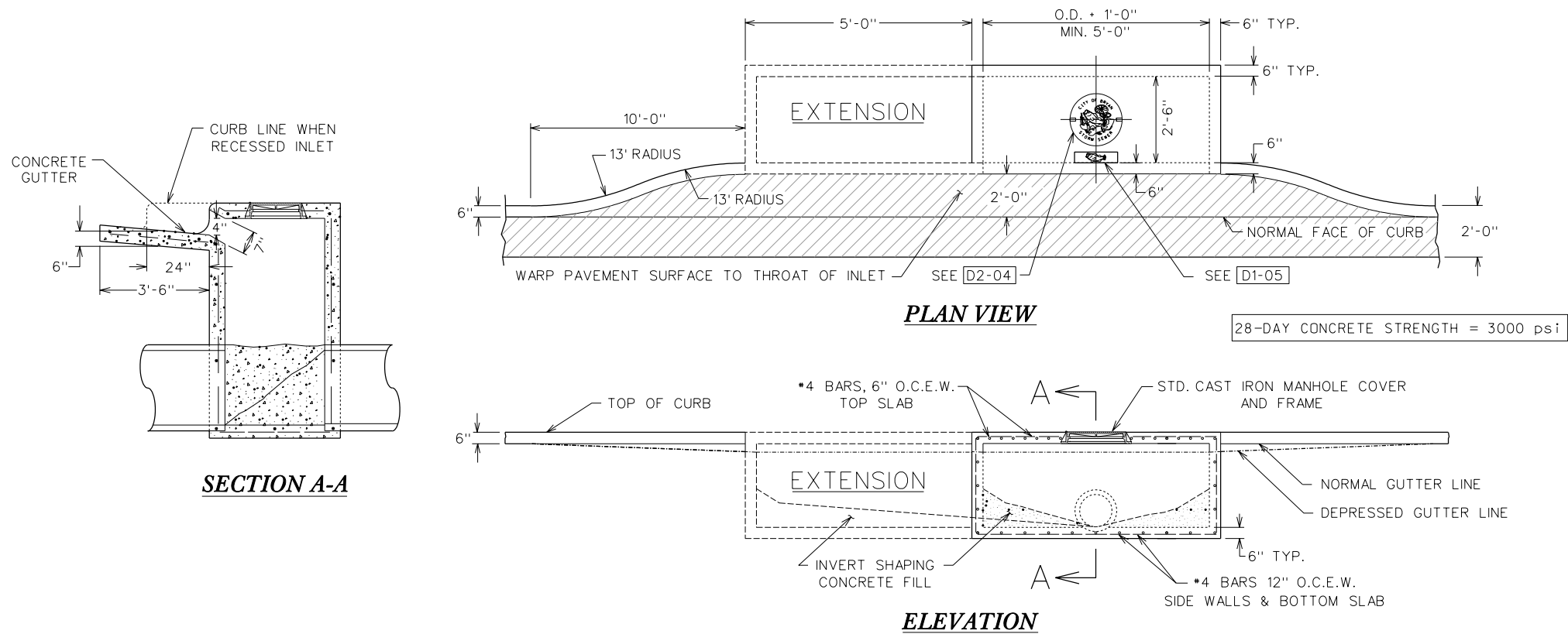


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DATE: 04-07-03
SCALE: N T S
APPROVED: W.P.K.

FIGURE:

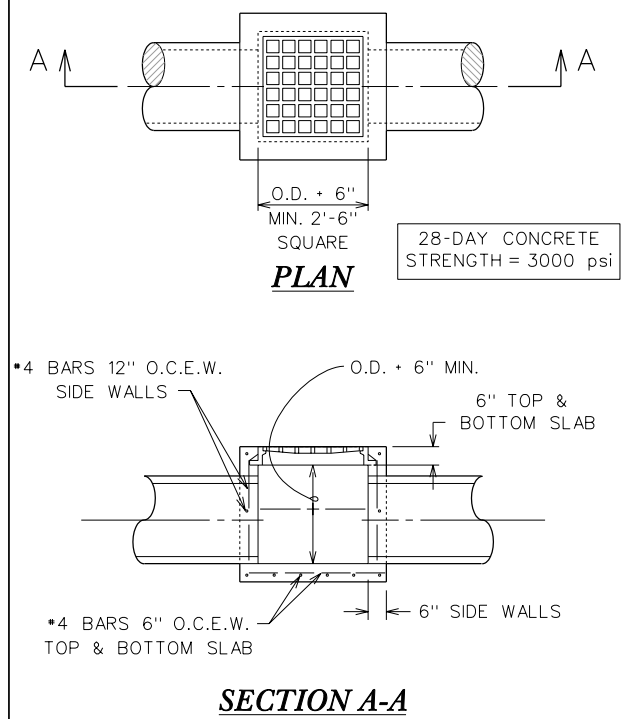
SWPP1

SHEET 1 OF 1



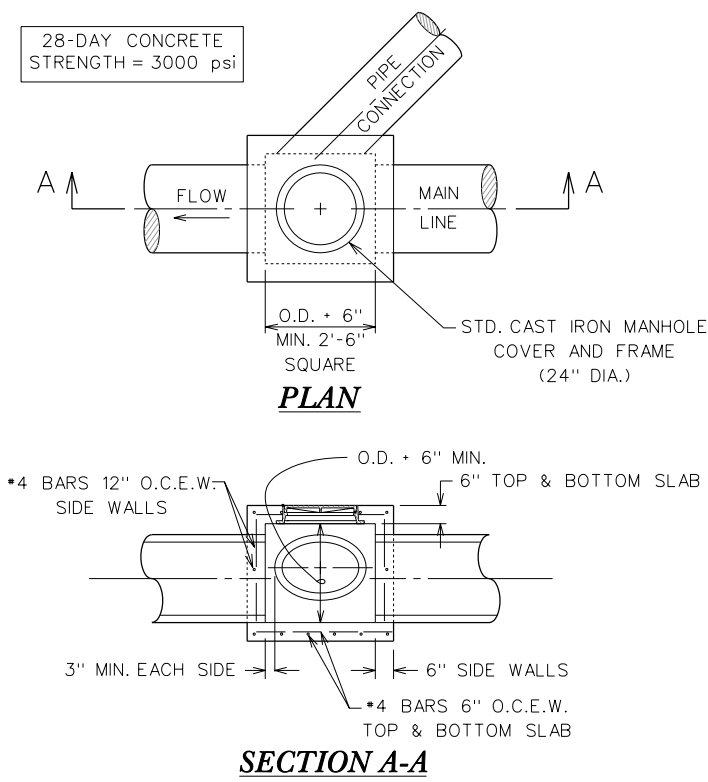
SINGLE RECESSED CURB INLET & CURB INLET W/EXTENSION

D1-00



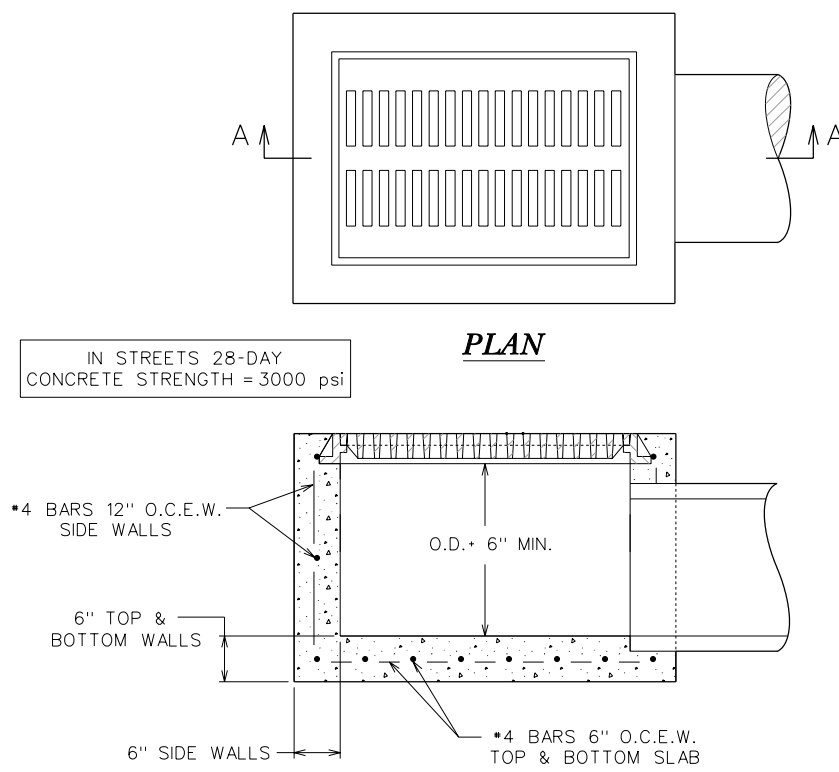
SINGLE GRATE INLET

D1-01



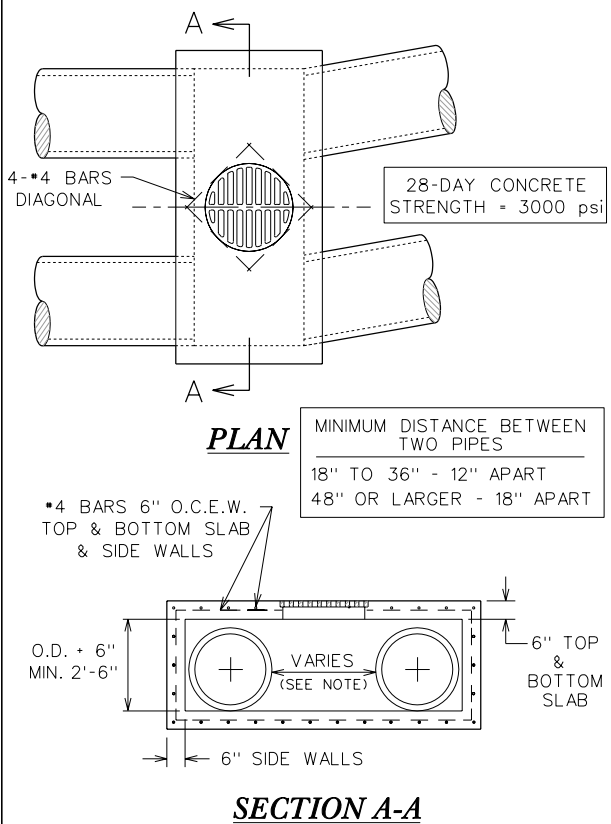
STORM SEWER JUNCTION BOX

D1-02



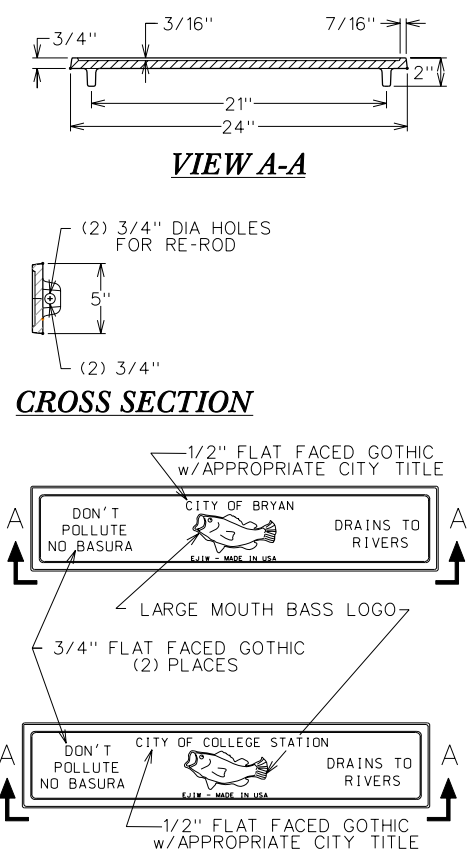
GRATE INLET

D1-03



DOUBLE BARREL INLET

D1-04



TROUT LOGO PLATE

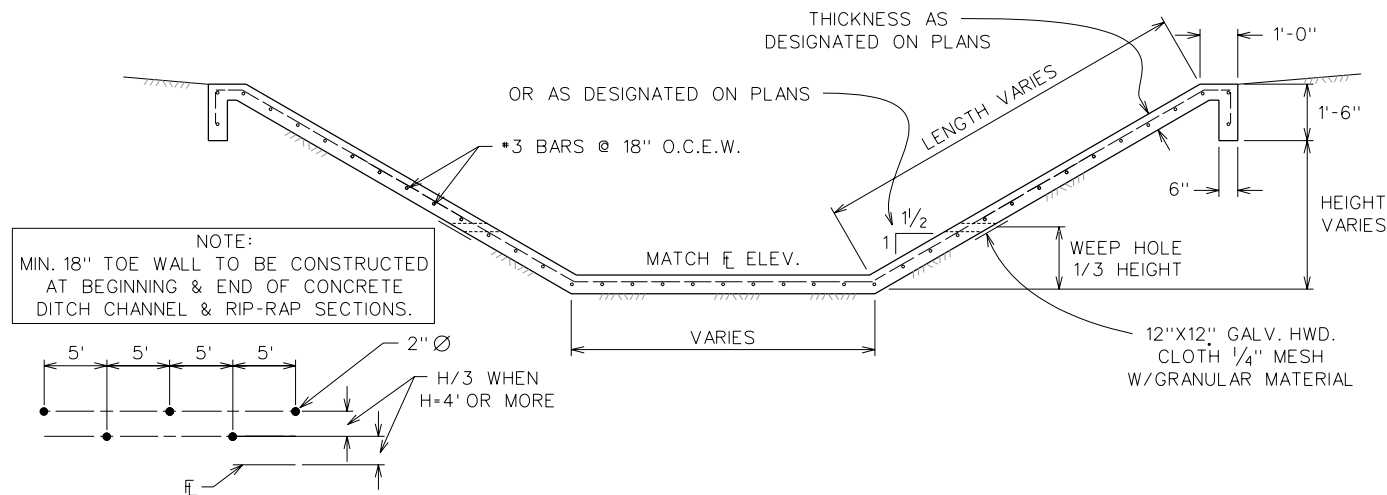
D1-05

REVISIONS:

**BRYAN - COLLEGE STATION
STANDARD DRAINAGE DETAILS**



DRAWN BY: C.L.M.
DATE: 01-01-06
SCALE: N T S
APPROVED: W.P.K.
FIGURE:
D1
SHEET 1 OF 3

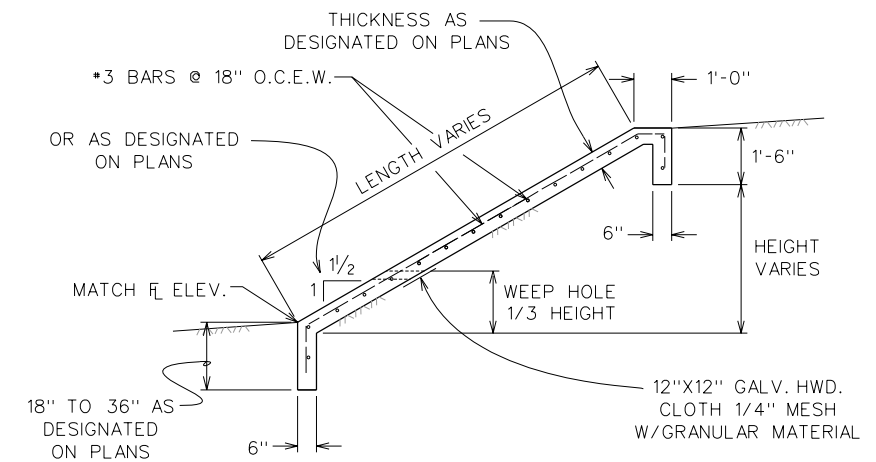


WEEP HOLE DETAIL

28-DAY CONCRETE STRENGTH = 3000 psi

CONCRETE CHANNEL LINING

D2-00

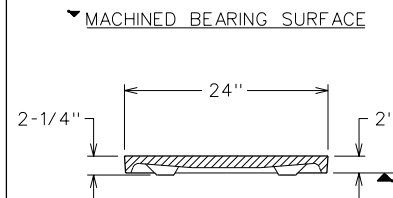


WEEP HOLE DETAIL

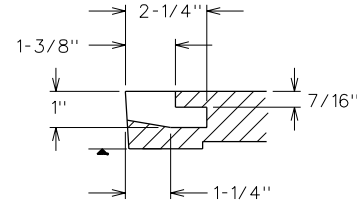
28-DAY CONCRETE
STRENGTH = 3000 psi

CONCRETE RIP-RAP

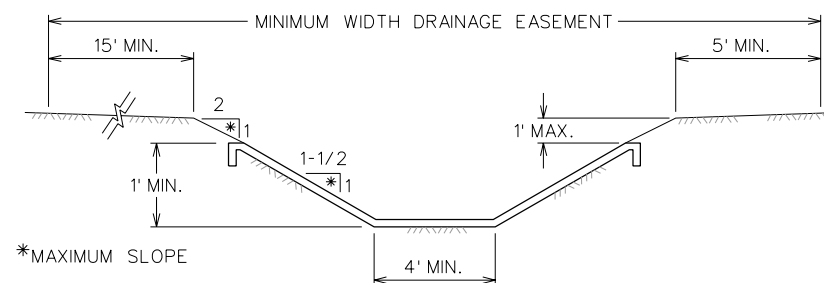
D2-01



COVER SECTION



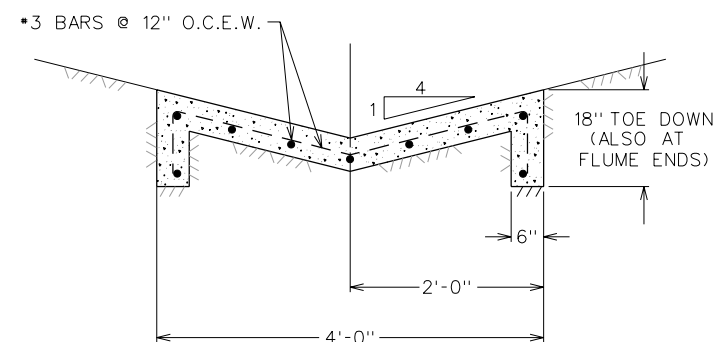
PICK HOLE DETAIL



TYPICAL LINED CHANNEL SECTION

BLOCK SOD OR ENKAMAT W/HYDRO-MULCH

STANDARD CHANNEL SECTION

D2-02

28-DAY CONCRETE STRENGTH = 3000 psi

STANDARD FLUME SECTION

EXPANSION JOINTS AT 60' O.C.

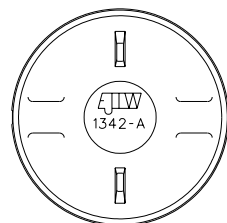
D2-05



COVER FACE



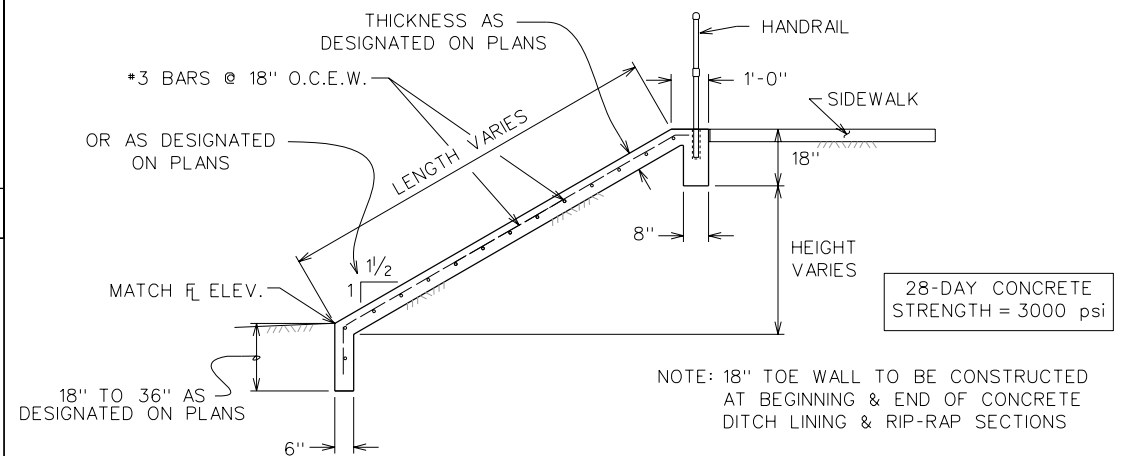
COVER FACE



COVER BACK

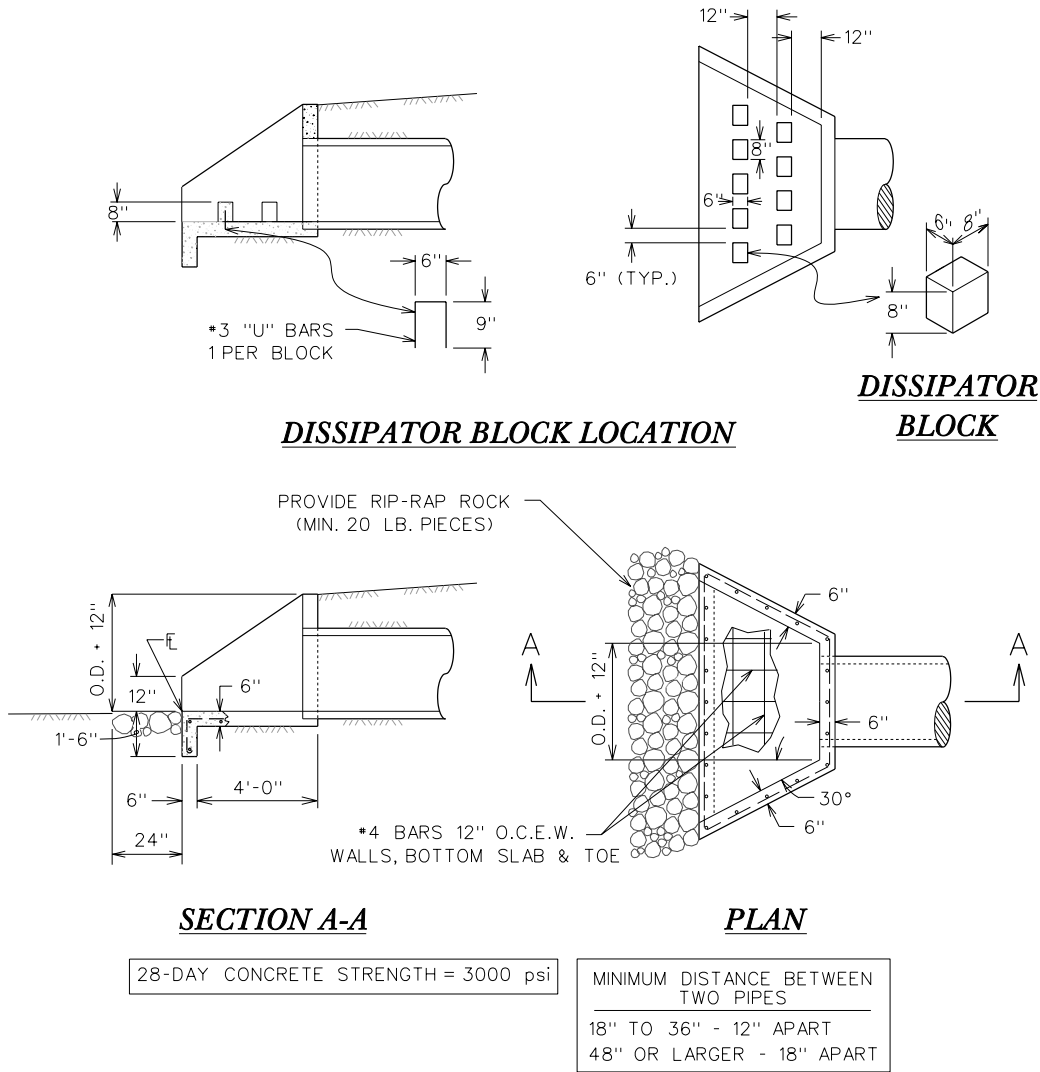
MANHOLE RING AND COVER

D2-04



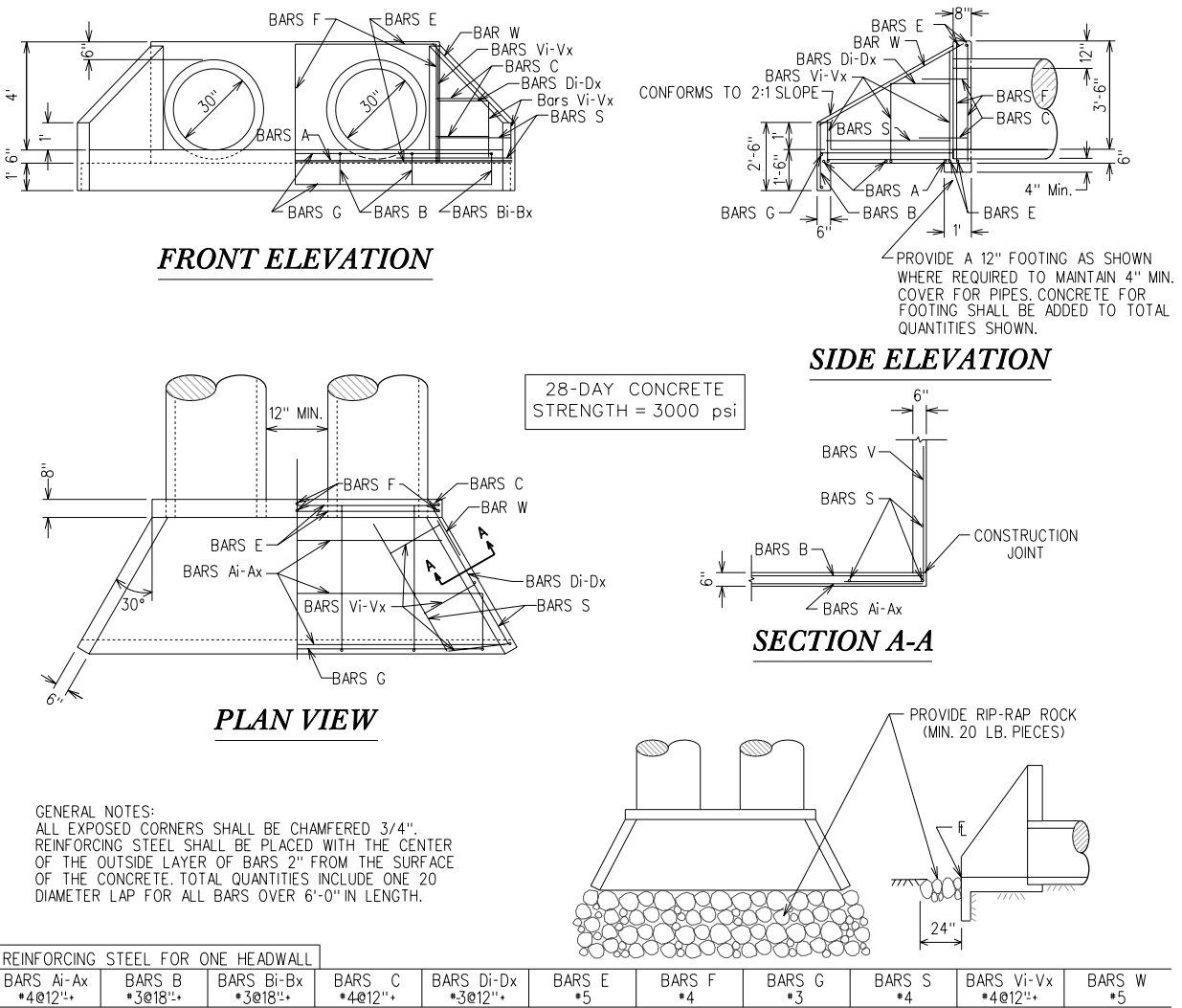
CONCRETE SIDE SLOPE PROTECTION

D2-03



**TYPICAL CONCRETE HEADWALL
& END WALL WITH WINGS**

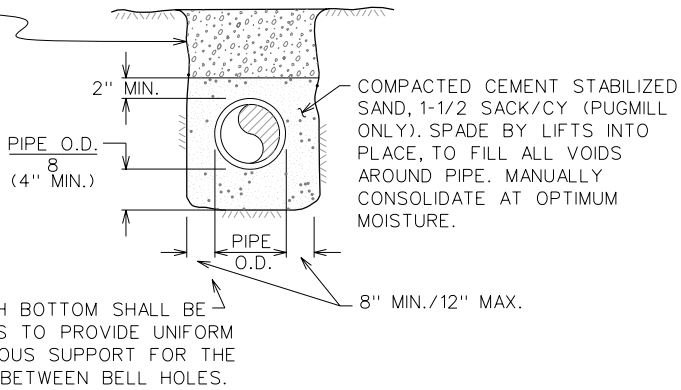
D3-00



CONCRETE HEADWALL FOR 2 PIPES

D3-01

SELECT MATERIAL ———
MATERIAL EXCAVATED FROM THE DITCH, (WHICH IS FREE OF ROCKS, LUMPS, CLOUDS, OR DEBRIS LARGER THAN TWO (2) INCHES IN THE LARGEST DIMENSION), COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER NON-STRUCTURAL AREAS (ie...YARDS, PASTURES, EASEMENTS) AND TO A MINIMUM OF 98% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698 (STANDARD) AT A MOISTURE CONTENT WITHIN OPTIMUM TO +4% OF OPTIMUM UNDER FUTURE STREET AREAS.



**BEDDING AND TRENCH FOR REINFORCED
CONCRETE PIPE**

D3-02

REVISIONS:

**BRYAN - COLLEGE STATION
STANDARD DRAINAGE DETAILS**



CITY OF BRYAN
The Good Life, Texas Style.™

DRAWN BY: C. L. M.

DATE: 01-01-06

SCALE: N T S

APPROVED: W. P. K.

FIGURE:

D 3

SHEET 3 OF 3